The Builder.

No. CCCCLX.

SATURDAY, NOVEMBER 29, 1851.

AUTUMN usually brings other falls besides the "fall of the leaf." We have before us the particulars from various quarters of chimney-breasts that have split, party-walls that have slipped or sunk, and houses that have doubled up just as the roof was being put on. Nor will any one be surprised to hear of these occurrences whose attention is given to the proceedings of speculative builders, in the suburbs of London especially. We were going to call them *accidents*, but the expression would not be correct. Accidents are explained as "chances;" accidental, as a "quality non-essential;" whereas, in truth, with many of the buildings to which we are alluding, that they stand is the accident, instability is a quality not separable from their constitution. In many cases, the bricks are bad, the mortar is bad, the work is bad, and the disposition of the supports is bad: what keeps them together until the work sets can scarcely be pointed out, and the fact that falls only occur occasionally (much oftener, though, than some think, because, unless life be lost, they seldom come before the public), serves to show what may be done with good materials properly placed. Of course, there are many exceptions, and those builders who do their work well, and strive to produce houses not merely to sell but to last, are the witnesses we would call to prove the extent to which rubbish such as we have pointed to is prepared for the market.

The removal of the brick duties has not yet produced that improvement in the make of bricks which we ought to find: large quantities of the worst description are at this time being sold at prices for which a good material ought to be provided. The Great Exhibition shewed, what every one knew, that bricks of the most admirable quality, bricks far exceeding stone in hardness and durability, could be obtained in various parts of the kingdom; but as bad bricks can be obtained for less than good bricks, so long as houses built of the former will sell as readily as if the better had been used, especially if bedizened with a little compo, the knowledge is of very little use, and builders for the market will continue in their present course. It would be useful to inquire into the circumstances which enable M. Miesbach to produce in Austria the singularly fine bricks exhibited by him in Hyde-park, at the very low price which was mentioned for them. We must repeat the expression of our disappointment that so little advantage has yet been taken of the free course for industry now open in brick-making. Processes should be sought to cheapen and improve, and no bad bricks should be allowed to leave the field. Such a regulation as this would soon get a maker a reputation and a fortune. There is nothing that a good brick is not capable of: if we may laugh on our road, we would say that the multitude, when they term the best of fellows "a regular brick," show an appreciation of this fact. There are some bricks that will bear anything, and that too without a wince,—look, for example, at the lower courses of some of our monstrous chimney-shafts, higher than St. Paul's,—while others yield unconditionally to a shower of rain. To put a less extreme case: we tried one morning the bricks that were being used in two neighbouring buildings, one resisted uninjured fifty tons, the other was crushed by three!

It is a common practice with "cutting" builders to compound the mortar with the earth dug out of the foundations, in lieu of sand. The surveyor for the ground landlord, should he employ one, may beg that this be discontinued, may swear, may threaten that he will withhold his certificate for a lease; often wholly in vain, the builder trusting to the good nature of the ground landlord, the desire of the solicitor of the estate to issue leases, or unwillingness on the part of the surveyor, when the house is up (and has not tumbled down), to punish him with what would in many cases be ruin.

We have in our own practice wrongly yielded often enough, and permitted leases to be granted where intreaties have been in vain, and the houses insufficiently built. But in two or three cases we have been forced by considerations of duty to refuse a lease, and the result has necessarily been very serious. We should be glad if the mention of this led some to reflect upon the matter, and spare us and others the necessity of a similar step.

The opinion seems to be general amongst the bricklayers employed on the class of houses to which we are alluding, that headers are quite unnecessary; that if the walls be built of whole bricks and bats to look like headers and stretchers, any tie between the outer face of the wall and the inner is quite uncalled for. We have several houses in our mind at this moment where the facing of the walls being a better sort of brick, is, from bottom to top, simply tied to the inner part of the wall by headers 4 feet apart every way! The men know better, spite of all that has been done to destroy the race of skilled bricklayers: they know perfectly well that the wall is unsound, but if they are not building for themselves, in which case desire to save leads them to the evil, they are forced by the instructions of their employer to act as they do.

Add to what we have been pointing to, imperfect foundations, sham arches, pockets in the chimney-breasts filled with rubble, the absence of even timber bond (bad in the long run, but useful in the first instance when hoop iron and cement are not used, as they should be), and our readers will agree with us that the *accident* happens when a house so built *stands*.

For much of this, house-buyers are to blame: they look at the outside with eyes that see not, found their calculations on the rent which by some means or other has been obtained for the frail tenement for which they are in treaty, and discover too late that they have bought a constant source of expense and annoyance. If in all cases an architect or other competent person were called in previously to the purchase, to examine the house, the buyer might be spared this loss, the honest and able builder would be protected, and those who have practised the "cutting" system would find it necessary to mend their ways and build better.

MINERAL PRODUCTS RELATING TO THE BUILDING ARTS IN CLASS I. OF THE GREAT EXHIBITION.*

OOLITES.

No. 29 contained several specimens from the great or Bath oolite of Combe Down near Bath, Corsham Down between Bath and Chippenham, and from the Box tunnel near Bath. The Combe Down stone, in the commissioners' report, is set down as weighing 116 lbs.—but Mr. Howard, the exhibitor, gives the weight at 125 lbs.—per cube foot. Besides its use as ashlar in the works of the Kennet and Avon canal, in the Somerset coal canal, restoration of Henry the Seventh's Chapel, Westminster Abbey, and many other works, this stone is extensively used for ridges and troughs. This stone by means of the Great Western Railway ought to be supplied in London for about 1s. per cubic foot. The specimens from Box and Corsham weigh about 122 lbs. per cubic foot, and have been used in Laycock Abbey, Longleat, Bowood, south front of Wilton House, Windsor Castle, &c. These, and all the stones from the neighbourhood, ought to be supplied in London for something less than the Combe Down stone, the price of scabbled blocks at the quarries being only 6d. or 7d. per cubic foot. Besides these there are several specimens from Pickwick and the north end of the Box tunnel, one of which is described as "a good weather stone," and the weight of different specimens is said to vary from 124 lbs. to 140 lbs. The Box stone contains 94½ per cent. of carbonate of lime, and the disintegration is considerable, being equal to one grain in 377.

No. 29 also contained a specimen from the lower oolite of Dundry, a remarkable hill of lias in the neighbourhood of Bristol, capped by a patch of lower oolite. The Dundry stone is not so light a cream colour as the stones which have been described from the middle oolite; nor is the grain so fine: its weight is 135¼ lbs. This stone was used in the construction of Bristol Cathedral and the splendid pile of St. Mary, Redcliff.†

Nos. 181 and 193 both contained specimens of stone from the lower oolite of Ham-hill, Yeovil. This stone is not so light-coloured as those from the neighbourhood of Bath, and may be described in the words of the commissioners as a light ferruginous brown: used very extensively throughout the neighbourhood: weight 141 lbs. 12 oz. per cubic foot. Its composition varies considerably from that of the other oolites, principally by containing silex and an admixture of carbonate of magnesia and iron alumina. The analysis is as follows: silica, 4·7; carbonate of lime, 79·3; carbonate of magnesia, 5·2; iron alumina, 8·3; water and loss, 2·5; bitumen, *a trace*. The disintegration nearly as great as in the Bath stone, being 1 grain in 500.

No. 193 and No. 160 had also specimens from Monkton Farleigh Down, the great oolite near Bath. It was used in parts of Buckingham Palace, in Hoare's Banking House, and in building St. James-square, Bath.

No. 193 further contained specimens from the great oolite of Langton Herring, near Weymouth, and from the lower oolite of Doulting, near Wells, Beaminster, Crewkerne, and Bothenhampton, near Bridport, the latter of which is also used for paving-stone. Neither of these stones is in great repute except that of Doulting, which was used in all the surrounding churches, and in Wells Cathedral, the quarry from which the stone was procured still bearing the name of St. Andrew, to whom the cathedral is dedicated.

The oolite of Tisbury, Wilts, is remarkable for a bed of flint, which presents beautiful sections of madrepores belonging to the *genus astrea*, the hexagonal sections of which appear wherever the stone is cut and polished. The hexagonal cells also appear on the rough, undisturbed exterior of the flint stones, the centre of each cell being hollowed out as in a recent sponge.

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* See p. 715, *ante*.

† An account of the quarry appeared in our pages some time since.

THE PORTLAND STONE.

This formation, as well as the Purbeck stone and Sussex marble, to be hereafter described, although generally ranked in the upper part of the oolitic series, have been separated from the true oolites for the sake of simplicity, and because they are not continuous, like the ranges of the middle and lower oolite, but are confined to particular districts, or feebly represented in other parts of England by rocks whose constituents are widely different. Thus the calcareous beds of the Isle of Portland, to which the name of Portland stone is confined, do not appear in any other part of England, except in the vale of Aylesbury, where they are not worked to any great extent. The Kimmeridge clay, however, which represents part of the Portland formation, namely, the clay on the north side of the island which underlies the Portland stone, is met with in the vale of Pickering: it also borders the chalk and lower green sand of Lincolnshire, and with the Portland oolite already mentioned, fills a considerable breadth in the vale of Aylesbury. Capped occasionally by irregular patches of oolite, the clay goes on following and underlying the green sand of Oxfordshire, Berkshire, and Wiltshire, where it disappears near Wincaunton. It appears again under the South Downs of Dorsetshire, and in the Isle of Portland, where it is overlaid by that great mass of oolite so well known under the name of Portland stone.

There are no less than fifty-six quarries in the isle of Portland, and the stone produced from them may be divided into three distinct varieties, namely the *cap*, the roach-stone, and the freestone beds in common use for architectural purposes. The *cap* occurs in one or more beds of whitish cream-coloured very hard limestone, with partings of clay, and generally occupies a thickness varying in different quarries from 5 to 12 feet. This stone is seldom used for building purposes, but is extensively burnt for lime.

The roach beds are very peculiar in their structure and appearance, being almost entirely made up of the casts of molluscous animals, both univalve and bivalve, united by an earthy and sometimes slightly crystalline cement The material of the shell in this stone has been generally destroyed, so that there is a hollow lift between the casts and the matrix in which they are embedded. This gives rise to a very peculiar appearance in the stone, which is not deficient in strength, but is seldom used for the exposed faces or parts of buildings. The roach is usually about 2 to 4 feet thick, although in some of the quarries the roach-stone replaces one of the beds of freestone; in which case it sometimes reaches ten feet in thickness. The freestone beds are a light cream colour, fine grained, generally with an oviform structure, mostly fossiliferous, the cement of the stone being semi-crystalline in the best specimens, and in others somewhat earthy, and decomposing much faster than the imbedded fossil shells, which are seen in some buildings standing out in relief. The thickness of the freestone beds is generally from 7 to 10 feet. The cost of the best stone at all the quarries in 1839 was 1s. 4½d. per cubic foot and about 2s. 3d. in London.

No. 180 contained specimens of Portland stone dressed in a variety of ways, and showing its applicability to ornamental carving. The roach stone is dressed with hollows to imitate rock-work, so that the natural hollows in the stone do not appear as a blemish, but rather as intentional and ornamental. There are several ingenious contrivances for dressing this stone in such a way as to neutralise the unsightly appearance of the hollows; such, for instance, as representing the stems of ivy climbing up a wall, and producing other varieties of rugged surface.

No. 160 contained numerous specimens of the Portland freestone of a light cream colour, fine grain, and compact structure. These represent the material used in the Royal Mint, the Bank of England, British Museum, Fishmongers' Hall, Bethlehem Hospital, and Bridgewater House, among modern buildings. The employment of Portland stone in St. Paul's Cathedral, the Monument, Westminster and Blackfriars Bridges, the Horse Guards, and nearly all the metropolitan buildings of corresponding age is well known.

No. 160 also contained a specimen of roach stone from the Portland quarries. This stone contains numerous casts of fossils, with hollows between the casts and the matrix; the part surrounding the hollow being hard and semi-crystalline. In some cases the substance of bivalve shells is left. These are frequently large species of oyster or mytilus, and probably serve to strengthen the stone. The specimen has a dingy cream colour, and represents the stone used in the piers of Blackfriars-bridge, Dover-pier, Weymouth-bridge, &c.

No. 173 and No. 193 exhibited specimens of Portland stone from the freestone beds, about which there is nothing particular to notice.

Although this stone has been a general favourite for many years, it seems now to be less thought of. No doubt a great deal of the modern prejudice against it has arisen from the deception practised by parties connected with the quarries, and the neglect of care in selection. The stone from Waycroft Hall quarries, on the east side of the island, was used for Goldsmiths' Hall, the Reform Club-house, and some other buildings of note; whilst no one can doubt for a moment that the Grove Quarries at Redcroft and Bowers, which supplied the stone for St. Paul's Cathedral, and many other metropolitan churches, are still capable of yielding good stone. To show however with what care and judgment the particular beds should be selected, it has been found that the upper bed of freestone is the best in some quarries and the worst in others. The present condition of St. Paul's Cathedral is exceedingly good, the carvings of flowers, fruit, and other ornaments, although blackened, being as perfect as when first executed. In fact, the black appearance of the stone is a sure indication that no decay is in progress; whereas, when the Portland stone looks white, the appearance is probably caused by slight decomposition of the surface.

The weight of the Portland stone varies from 135 to 147 lbs. per cubic foot, and the stone from Waycroft was particularly examined by the Royal Commissioners in 1839. It consists of 95 per cent. of carbonate of lime, being a larger proportion than any other stone which they analyzed: the other principal mineral ingredients were silica and carbonate of magnesia, of each 1·20 per cent. The disintegration of this stone was only 1 grain in 1,600, being very much less than in any other limestone that was tried.

THE PURBECK STONE.

This formation overlies the Kimmeridge clay in the Isle of Purbeck, and probably overlies and conceals the Portland oolite there. It also appears at Chicksgrove, in Wiltshire, filling up the Vale of Nidder towards Salisbury. It consists of various beds of stone ranging in colour from a light cream to a very dark grey, and sometimes a brown, several beds being used for flag pavement, others being freestone used as ashlar, alternating with inferior beds of stone, clay, &c.

The principal quarries in the Isle of Purbeck are in the neighbourhood of Swanage, where the stone is shipped in large quantities.

No. 160 contained several specimens of Purbeck stone from the Swanage quarries, namely, a whitish cream-coloured stone, with a slightly oolitic structure from the Purbeck Portland quarry at Swanage. This is the upper bed, and is used for troughs, sinks, and steps. This stone has been employed for the lighthouse at Margate, the clock-house of Dover Pier, the prison at Winchester, the West India Docks in London, the lighthouse at the Isle of Wight, the obelisk at Encombe Park, and numerous churches, bridges, &c., in the neighbourhood. Weight per cubic foot, 151 lbs. Price in London, 1s. 9½d. per cubic foot. A block, from the third bed from the top in Swanage quarries is also a whitish cream-coloured stone, not so oolitic as the last, and with somewhat more crystalline structure, owing to the abundance of fossil shells, frequently intersected by narrow fissures filled with pure carbonate of lime about one-eighth of an inch wide. Specimen from Swanage Downs vein, being the fourth vein from the top, a very light greyish stone used for paving. Block from Swanage Quarries, being the fifth vein from the top, a dull brownish grey-coloured stone, containing probably more alumine than some of the former varieties, moderately fossiliferous, intersected in many directions with very minute cracks filled with crystallized lime. This stone is much used for ashlar, and for the curbs of foot pavement. Specimen from the fifth bed, sixth vein from the top in Swanage quarry, a compact greyish limestone, very fossiliferous, used for paving, steps, and ashlar. Block from Feather Quarry, Swanage, a darkish grey-coloured limestone, very fossiliferous, used for ashlar, curbstones, steps, &c. Specimen from Leaning vein, the next below the Purbeck marble, a cream-coloured, very compact, fossiliferous, and moderately crystalline stone used chiefly for pavements, curbstones, and steps.

No. 160 and No. 193, contained specimens of Purbeck marble, a dark grey-coloured limestone, almost entirely composed of univalve shells of the genus Paludina, cemented together with an argillo-calcareous basis. This stone takes a beautiful polish, and was formerly much used for slender columns and shafts in our cathedral churches, few of which, in the south of England, are without specimens of this marble. Even now it is used for hall and library tables, slabs, mantel-pieces, &c., the sections of the shells on the polished surface being very ornamental, and sometimes grotesquely fanciful.

No. 193 contained one or two other specimens of Purbeck building stone, which do not differ from those already described.

No. 135 contained a very handsome block of Purbeck marble 4 feet long and 18 inches square, polished on several of its sides. This specimen was from Woodyhide, near Corfe Castle, and was used in decorating the interior of the Temple Church.

No. 202 contained two specimens of Purbeck stone from Chicksgrove, near Tisbury, Wilts. These are both of a whitish cream colour, fine grained, and are much harder than the other. The hard variety is used for steps, pavements, monuments, tablets, &c., and occasionally for troughs. The soft is used for fronts of houses, cornices, and general building purposes.

No. 152 contained a specimen of Sussex marble which very closely resembles the Purbeck marble, except that the prevailing fossil is usually a larger species of Paludina than in the Purbeck. Beds of Sussex marble, seldom exceeding a foot in thickness, range for long distances in nearly parallel courses throughout the weald of Kent and Sussex, and the variety called the Petworth marble is almost as well known and as extensively used as the Purbeck marble. The wealden beds of Kent and Sussex are supposed to occupy geologically a higher place in the oolitic series than the Purbeck oolites. The wealden formation of Kent and Sussex, consisting, in its upper part, of a thick mass of bluish clay, called by the older geologists the oak-tree clay, and in its lower part consisting chiefly of arenaceous beds, contains few building stones of much consequence. A species of very shelly limestone, termed Sussex marble, much resembling the Purbeck marble, occurs at Petworth, and numerous other places in the weald clay chiefly in thin beds a few inches in thickness. In the arenaceous part of the formation as at Horsham, Hastings, and Tilgate Forest, beds of sandstone occur suitable for building, and occasionally flag stones are met with. Ironstone is disseminated throughout the lower part of the wealden formation in the shape of irregular concretions, and also in laminated buff-coloured beds.

No. 50 contained specimens of a white siliceous stone termed locally Hastings granite. This is a mere stratified aggregation of pure siliceous particles, with a calcareous cement, and bears no resemblance whatever to granite. It also contained a specimen of grey calcareous rock from Tilgate Forest, which is used for a building stone at Hastings, and particularly in the new houses at St. Leonard's.

BUILDING STONES FROM THE GREEN SAND FORMATION.

This name is assigned to a well-marked series of arenaceous and argillaceous deposits, which everywhere accompany and pass under the chalk of this country. The series is usually arenaceous in its upper and lower members, the upper green sand consisting of siliceo-calcareous beds, which furnish a valuable firestone, the middle part consisting of a thick argillaceous deposit, provincially termed the gault clay, and the lower part consisting frequently of elevated hills of sand indurated occasionally into stone, sometimes highly arenaceous and sometimes containing carbonate of lime in a considerable proportion. Other products of economical value in the green sand formation are fuller's earth, scythe-stones, iron pyrites, sand for moulding purposes, glass making, &c. Throughout the whole elliptical basin of the weald of Kent and Sussex the green sand accompanies the chalk from Hythe on the coast of Kent, to Petersfield in Hampshire, whence it returns to accompany the chalk of the South Downs to the Sussex coast at Pevensey and Beachy Head. The green sand of the West of England, which yields all the specimens of this stone in the Exhibition, excepting those in the weald, again accompanies the irregular outline of the chalk in the counties of Wilts and Dorset by Warminster and Shaftesbury, passing round to the coast between Weymouth and the Isle of Purbeck. Another and a detached mass of the green sand formation constitutes the Black Down hills in Devonshire and occupies the country about Chard, Honiton, and Sidbury. The whole formation takes its name of *green sand* from the presence of a peculiar green mineral, which occurs abundantly in the indurated beds of the series. This mineral, which is so plentifully disseminated in some of the beds as to give them a decided green tinge, occurs in small crystals, and is now generally understood to be a green silicate of iron.

No. 160 contained a block of firestone from the upper green sand of Godstone, Surrey. This stone is a very light grey coloured stone, tinged with green and abounding with mica, and was formerly much used as a building stone, having been so employed in Westminster Abbey, and the cloisters and other old buildings, also in Hampton Court, Windsor Castle, numerous churches in Surrey, the Town-hall and almshouses at Croydon, and several modern houses in Gatton, including Gatton House, the seat of the Countess of Warwick. The Gatton firestone, which was used for some of these buildings, does not differ from the Godstone, so that it is unnecessary to make any distinction between them. The weight of this stone is usually about 103 lbs. 1 oz. per cubic foot. It is the common hearth-stone of London, so extensively employed for cleaning hearths, door-steps, stone stairs, &c., for which purposes it is daily hawked about the streets. The fire-stone is also very much used for lining furnaces, stoves, bakers' ovens, and for every purpose to which fire-brick is applied. This stone was formerly conveyed by a tram-road to Croydon, and thence by canal to London, the price there being 1s. 6d. per cubic foot. It ought now, by means of the London and Brighton Railway, to be delivered for about 1s. per cubic foot.

No. 160 had also a block of Kentish rag-stone from Boughton quarry, near Maidstone, being a light-coloured greyish somewhat crystalline conglomerate of quartz, with occasionally green particles of silicate of iron imbedded in a calcareous cement containing shells. This stone is very like the Calverley stone from Tunbridge Wells, which was examined by the Royal Commissioners in 1839: weight, 118 lbs. 1 oz. per foot; price, delivered in London, 1s. 2d. per cube foot. This stone is very extensively used for church building in the present day, and is believed to have been much employed in building Westminster Abbey.

It also contained two specimens from the Iguanodon quarry at Maidstone, namely, a rag-stone similar to the above, being a conglomerate of quartz grains, with a crystalline calcareous cement, and the other being a soft freestone termed hassock. The rag-stone of this quarry has been used in many ancient and modern churches, in Harwich breakwater, and in her Majesty's dockyards at Woolwich and Chatham. The hassock is a soft stone unfit for exterior work, but is much valued for the interior of walls on account of its absorbent properties, and the dryness of its surface. It was used in the walls of Westminster Hall, and of All Saints College, Maidstone. The following analysis is given by the exhibitor:—Carbonate of lime, 53; alumina, 4; oxide of iron, 8; silica, 32; phosphate of lime, soda, magnesia, and sulphuric acid, 13.

FINE ART CRITICISM.

THE office of the art critic, as I take it, is to estimate art-productions,—the *works*, not the persons, of the artists, by the test of a rationally deduced æsthetic standard; to pronounce whether the subject of his criticism, be it architecture, painting, or sculpture, is good or bad, and how far it is either. With the controlling circumstances of the author he has nothing to do: he will commiserate as he best can the pressure of adverse circumstances, or of moral weakness, that may lead the hand of the artist practically to belie the conviction of his heart; but he cannot on this ground conscientiously ignore the faults of his work: there let the artist or architect speak for himself,—let him say, if so the case be, "This work of my hand has many faults, but here I was coerced by such and such unavoidable circumstances; here I gave in to ignorant clamour; there I was seduced by fashion and succumbed to the taste of the day." Whether architects or artists of the present time are in any numbers inclined to use this form of open confession, I am not prepared to say; though I believe that at all times, from the dawn of art till the present moment, true artists have frequently said something like this to themselves, with all sincerity of sorrow, and with all following of amendment.

The intellectual structure of the true artist (to borrow a term from science) appears to me to be endogenous (growing from within outward): like a monocotyledon, the germ of his intellect has but one seed leaf, that, namely, of art-production: to produce, or, as in the highest instances, by foresighted evolution to create, is the direct tendency of his energy,—the vital atmosphere of his existence; and to all objects of his thoughts, on all subjects of his reflection, the question put is (according as his particular branch of art may be), will it paint? will it build? will it rhyme? will it sing? The intellectual structure of the true critic (to continue the same mode of comparison) is exogenous (increasing from without): like a dicotyledon, his intellectual germ bears two seed leaves; leading him, on the one hand, in the spirit of love, to surround himself with the productions of art; on the other hand, in the spirit of knowledge to arrange, to compare, to classify. Like the royal preacher of old time, all things which lie within his intellectual sphere "are full of knowledge: his eye is never satisfied with seeing, nor his ear with hearing:" range beyond range, like the ever-increasing circles in water, the facts of art-production surround his central consciousness, from whence shoot forth the radii of soul-perception, dividing, estimating, and apportioning up to that outermost rind of vital power, beyond which whatever the soul may feel "the mind cannot utter it." Were artists plants, and critics botanists, the question between them would be soon settled; for nature's system of science or of art is always right, and wherever error exists it is always chargeable to the intellectual short-comings of man; for man's destiny is to be the free-willed and faithful friend of Rectitude, and not its natural slave, and therefore in the way of Wisdom as in the path of Peace, man is "made perfect through suffering." But while artists and critics resemble plants in their intellectual structure,—whilst, like them, their growth is liable to accidents of situation and circumstance,—whilst, like them, they have a natural opposing energy to adverse action,—they have, in addition, what neither plants nor aught else but man has,—a moral consciousness,—an intellectual perception, which enables them so to comprehend their exact position, as most certainly to ensure their ultimate safety; giving them power, either by manly energy of opposition to break the fetters of circumstance, or by the wise humility of prudence to elude them.

If the comparisons I have here drawn be correct, it follows that no man can be at the same time artist and critic; for the proper task of either occupies the full sphere of the soul's energy, and we know that "two equal bodies cannot at the same time occupy the same space." It may be asked, "Does not the artist, then, in his working, employ the faculties of judgment, comparison, and arrangement; and is he not, therefore, insomuch as he uses these, a critic also?" I reply, he does use these faculties, but as an *artist*, not as a critic: the tenor of his judgment, his elections of comparison, his preferences of arrangement, issue primarily, not from external reflections of the art-mind, but from the internal instincts of the art-soul, or nature. Like potassium, which, when dropped on wetted paper, follows with eager rapidity every line and streak of moisture, so intense is its affinity for water, the soul of the artist, in the hour of his inspiration, follows, with the eager affinity of love, the ethereal tracks of beauty, and the ready hand records the prompt judgments of the fervent heart. But in all this there is no criticism (properly so called), and in the hour of his greatest triumph the artist, if asked, as was once Mozart, "Why did you so and so, in such and such a way?" can only reply with him,—"I did it so because it was best so."

> "Work of his hand,
> He nor commends nor grieves;
> Pleads for itself the fact,
> As unrepenting Nature leaves
> Her every act."

The full-powered artist, who should assume the critical function,—the full-powered critic, who should attempt artistic production,—would equally end in failure. The art-canons of the former, grounded too much on individual predilections of style, would want the broad basis of well-considered generalization: the art-productions of the latter, confused by conflicting eclecticisms, would result in an example of the exaggerations of all styles, but the beauties of none. Writers without the pale of the profession, it is evident, must take wider views, while action in one particular department has a contractile power on the mind; and we may apply to art what was said by Goethe, in reference to the drama, "thought expands, but lames; action animates, but narrows." Let me not be misunderstood: I mean not absolutely to deny, at all times, and under all circumstances, the capabilities of critical power to the artist, or of artistic power to the critic: to do so would be, not to compare, but to *identify* their nature with that of plants; making the primary structural nature absolute throughout, which in man it is not: he can modify, control, direct, and change, to a greater or less extent, his mental constitution; but what I contend for is this: 1st. That neither artist nor critic can, as such, become the other; 2nd. That the greatest range of power lies in the direction of the natural psychical tendency; and if we run directly counter to this, we acquire but a secondary advantage, at the expense of a primary one. Whenever, therefore, artist and critic oppose their natural tendencies, and force the tides of energy into each other's domains, they may justly be compared to one who, being naturally gifted with acute powers of vision, should bandage his eyes, and endeavour to define objects by his inferior sense of touch: what his fingers gain, they gain at the expense of his eyes; and so in like manner, in proportion as the artist becomes a critic, he ceases to be an artist. The only way in which either safely can, or does, use the function of the other is in subordination to his own; and, as in all cases, the greatest power, *ceteris paribus*, effects the most absolute

result, the artist is the best art-producer, the critic the best art-judge.

But what are the qualifications of the critic? for qualifications he must possess, as well as the artist. I have attributed to him the spirit of knowledge and of love,—and these every genuine critic of art must possess,—a profound knowledge of its principles, to which every opinion should be referred, and some technical and practical knowledge of it also, with "no obscure notions gleaned from the past,—no popular maxims cherished as truths." He should be capable of understanding general and abstract truth; susceptible to the impressions of nature, and to all the mighty influences of life; fully alive to beauty, and capable of discerning and of disentangling it, however involved amid defects. Every reader of a poem, or spectator of a building or picture, should seek to imbibe the spirit of the work before him if he would derive the utmost profit from it: by so doing he may rise for a moment to the same eminence, and be wrapt into the same sphere of thought as the author in its conception. But he may be incapable of doing this: if so, he is not qualified to be its critic; its light has not yet reached him; his perceptions are not educated up to it, or it is beyond his intellectual powers. The fine arts are dependent on many sciences—as painting and sculpture on anatomy, architecture and music on geometry,—and these a writer must know something of before he can be a critic of art; and such acquirements, moreover, should be engrafted on, and adorn and strengthen, a mind acute and observant; that adores the beautiful, and is sensitive to the throbbing life around. Great knowledge, also, of extant art is necessary to the critic, that he may be able to detect plagiarisms; as well as an intimate knowledge of the elements, and an acquaintance with their capabilities of producing beauty; as a want of them must lead to error, and he will attribute beauties to the artist that belong to the elements he employs, and which he could not possibly have avoided; or, in the case of architecture, may be deceived by a mechanical excellence traceable no higher than to the mason or joiner: critics do not always distinguish between the design of the architect and the mechanical merit of the execution.

There are things it is important should be kept in view by the critic: he must never forget that art—the spiritual expression of nature and of human history and life,—is an infinity; and that the artist is all his days a student; that the happiest execution of the loftiest genius is but approximation. He must remember that, where the conception is great, little errors of execution may be pardoned; that great beauties should hide a multitude of small faults; a maxim that has been acknowledged and acted upon by great and genuine critics in all times; the origin of many figures of speech being found in the desire to cover such unavoidable errors or deviations in the writings of the great poets. "The more original," says a last century writer, "any performance is, the more it is liable to deviate; for cautious stupidity is always in the right." He should not overlook the fact that the artist works under certain restrictions; that every medium of human utterance is necessarily imperfect; that no artist can give us his idea in the full power and beauty of its conception, but his thought, weakened or defaced in its execution by his vehicle of expression: there is no language, it is said, that can fully and perfectly express all the ideas and sensations of man, so numerous and imperceptible are their shades; and the observation may be extended to the expression of the fine arts: besides, many a great art-soul may have a natural impediment in its utterance, for which allowance must be made in judging of its works. Among the best judges some difference of opinion will inevitably prevail upon great works of art. "Where art is concerned," observes Mrs. Jameson, "the faculty of seeing becomes itself an art." The faculty of delight in beauty needs to be educated like all our faculties; and unless under equal culture two men can scarcely see the same object: their constitution and relationship with nature are different; and according to their sympathy with nature, and the strength of their mental faculties, is its effect upon them: they see it through unequal *media*,—visions influenced by different degrees of mental culture and original power.

From our sketch of the true critic let us turn to the critic of the day. It is a self-evident, and we might almost say, a geometrical fact, that no man can be fully estimated but by his equal or superior; yet men have pronounced judgment on works of art whose minds never dwelt for a moment in that region of thought to which they belong, and who can no more comprehend them than the lesser body can contain the greater. Men who are naturally deficient in feeling and imagination can, of course, have but small appreciation for anything beyond mechanical dexterity; and the higher the quality of the work the more likely is it to be lost upon them. Works are preferred in which the higher qualities have been sacrificed to the lower, intellectual to mere sensuous beauty, true grandeur to magnificent display; and the tendency of their strictures would at first sight appear to be to strangle genius in its birth; for on such, of course, the finest strokes of nature and passion are lost. Such must judge by rule; and anything out of the beaten track they will not recognise. They must prefer the laborious compositions of study to those of true genius. Commonplace, unimaginative, and cold correctness they will applaud; but the man who hangs a fresh garland on the shrine of art, or plants a new stem, they cannot understand; for the more original any work of art the more liable is it to transgress their boundary and go beyond the horizon of their intellect.

Not only is defective nature, want of largeness and comprehensiveness of soul, evinced in art criticism, but even ignorance of the grossest kind. How often does the critic find fault with a work because it has not the qualities belonging to some other and higher walk of art, thus running counter to the first principle of criticism, which, as Pope says, is to consider the nature of the piece and intent of its author. They resemble some critics of Homer and the great poets, who blame their author for not doing what he never designed to do, and which was inconsistent with the nature and scope of his work. Too often they go further, and rail at him for his choice of subject, the walk of art which he pursues; forgetting that most men succeed better in one department than in another, and that each man's task allotted by heaven is to do that which he can do best.* S. H.

* To be continued.

OUR FEMALE POPULATION.

DOMESTIC SCHOOLS.

It was with much pleasure that I read a letter which appeared in your journal of October 11, from "C. M. E.," on the condition of the poor, especially of the female population. The writer well insists on the necessity of "making the poor fit" for those dwellings which, in the form of the Model Lodging Houses, are now in every direction being erected for them. The education of our female poor is a matter of such vast importance, that the subject should be pressed from all sides, and brought, if possible, under the immediate notice of our gracious Queen and her philanthropic consort, that some decisive and effectual steps may be taken to carry out so desirable an object. In some countries, the youth are educated at the charge of the Government, to do their duty in that state of life to which it has pleased God to call them. In our own land (blessed above others in many respects) this point is as yet neglected. Feeble efforts to supply this want are made by a few individuals in some of our provincial towns, where the girls are more than commonly felt evils, resulting from the number of young girls leaving schools without employment, and hopelessly ignorant how and where to obtain any. We have our infant and national schools for the instruction of children, poor houses and prisons for the aged poor and criminals. These institutions are established and supported by Government. To these may be added those objects which a benevolent public are ever ready to promote,—Ragged Schools, for gathering in the most destitute of our children for instruction,—female penitentiaries, to receive those who have destroyed their own happiness. But where is any effort made commensurate with these undertakings to educate and train our young scholars in habits of practical usefulness? Surely at that most critical period of life, when our youth begin to be conscious of their own independence, and struggle to assert it by a more self-willed line of conduct,—surely, then, more than ever should we, as a nation, endeavour so to educate them, that they may, by God's blessing on the effort, prove useful members of the great human family, instead of walking our streets cursed and cursing, ending a short existence, either in the bitterness of penitence in a penitentiary, or in starving misery at home.

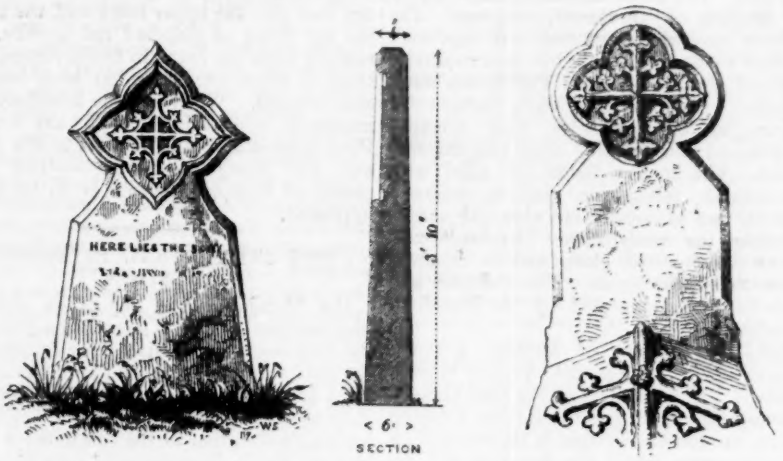
If others would bear their testimony, and raise their voices in behalf of this neglected portion of our female population, some plan for the amendment of the evil might be effectually furthered.

In this town (Southampton) a large sum is talked of as the probable cost of the erection of a gaol. When erected, the country must be further charged for the maintenance of prisoners lodged there. Consider also the money expended upon the erection of poor-houses, and the charge upon every parish for the support of the infirm sick and vicious sent there. It will be urged that these are necessary burdens; but if our Christian land can testify its spirit of forgiveness by doing so much for the vicious and criminal, might we not reasonably hope that it will be ready to spend what would be necessary for the purchase or erection of a suitable home, in which girls might be received and trained for domestic service, and rescued from the prison or the penitentiary? Let such a home be procured, and such an institution be established, and I hesitate not to say that it will support itself. No supplies from Government, no rates from a parish, will be required to keep a training school of this description at work. A small effort at a *domestic school* has been made for young girls in this town, and the effort has been blessed beyond expectation, as far as those it is intended to benefit have been concerned. Parents are willing to part with the weekly sum of two or three shillings towards the maintenance of their children in the school. The benefits of the school are so prized that they consider it a privilege to gain admittance for a child, and joyfully and regularly pay the sum required. These payments, added to the earnings of the girls in school by industrial occupation, would, without any doubt, support the institution; but it must needs be launched into existence. What is required for the efficient working of such an institution is a conveniently arranged building. The subject is of too much importance to be discussed in one letter, but if any read this who have hearts to feel and money to give to those who will heartily and conscientiously use their bounty for the honest test of a most important principle—*i. e.* the education of young girls in industrial and domestic employments—let them pity and help these young ones in a town where vice abounds, and temptation besets them at every step: let them have compassion on their mothers, and save them from the bitterest agony a mother's heart can know.

F. M. R.

Writing and Drawing Paper.—A medal was awarded to Mr. Joynson for his writing papers; and Mr. Wettone, of North Audley-street, having consideration for the quantity of paper we are weekly obliged to spoil, has sent us some of it to try, including a portion of an enormous sheet of double elephant. *Sir Toby Belch* speaks of a sheet of paper "big enough for the bed of Ware." But here was a sheet in which a hundred such beds might have been tied up and sent home. It was 2,500 yards long, 46 inches wide, and weighed nearly seven hundred weight. It is only just to say that the paper seems excellent.

CHURCHYARD MEMORIALS.



CHURCHYARD MEMORIALS.

IT is scarcely possible to walk through a churchyard without feeling the importance of inducing the selection of proper sepulchral memorials and epitaphs. There has been melancholy work done both in the churches and the open grounds; in the former positive damage to some of the finest buildings, and in the latter opportunities for useful teaching not merely missed, but so used as to do mischief and give pain. Since Dr. Markland published his excellent "Remarks on English Churches, and on the expediency of rendering Sepulchral Memorials subservient to Pious and Christian Uses,"* a correcter feeling on the subject has become more general than it was, though we still too often see the walls of our churches plastered with

——— "Mural Monuments, every size,
That woe could wish, or vanity devise."

We once met with an epitaph as nearly as we can remember like the following:—

"Underneath this ancient pew
Lie the remains of Jonathan Blue:
His name was *Black*, but that wouldn't do."

That any man could have set to work to cut this deliberately into stone, letter by letter, is surprising, but that his courage lasted him out is more so.

What shall we say, too, to this at Winchester, put up at the end of the last century:—

"Here sleeps in peace a Hampshire grenadier,
Who caught his death by drinking cold small beer.
Soldiers, be wise from his untimely fall,
And when ye're hot, drink *strong*, or none at all."

"Affliction sore
Long time I bore," &c.,

so often met with, and such as

"Here I lie, and no wonder I'm dead,
For the wheel of a waggon went over my head,"

seem inoffensive after such ribaldry; and one can almost excuse, on the ground of its purpose, the American tomb-stone, which is inscribed,—

"Sacred to the remains of Jonathan Thompson, a pious Christian, and an affectionate husband. His disconsolate widow continues to carry on the tripe and trotter business at the same place as before her bereavement."

As a contribution towards the improvement of our rural churchyards a small volume has been recently published by the Rev. W. Hastings Kelke, rector of Drayton Beauchamp. It is entitled "The Churchyard Manual," and contains, with remarks on churchyards, showing the importance of giving them a true Christian character, a collection of 501 epitaphs, not all such as we would choose, but mostly good, and many excellent.† An epitaph should be "simple, monitory, scriptural,"—the "epitome of a sermon teaching the most useful truths in the most comprehensive form." "An epitaph," says Wordsworth, "is not a proud writing shut up for the studious: it is exposed to all, to the wise and the most ignorant: it is condescending, perspicuous, and lovingly solicits regard: its story and admonitions are brief, that the thoughtless, the busy, and indolent may not be deterred nor the impatient tired: the stooping old man cons the engraven record like a second horn-book: the child is proud that he can read it; and the stranger is introduced by its mediation to the company of a friend: it is concerning all, and for all:—in the churchyard it is open to the day: the sun looks down upon the stone, and the rains of heaven beat against it."

It is not an easy matter to write a good epitaph. "Dear little child," at Westminster, and *Miserrimus*, at Worcester, are touching brevities, not without useful suggestiveness.

Wordsworth, who wrote a charming essay upon epitaphs,* has received one which does not seem to us satisfactory.

"To the Memory of William Wordsworth, a true philosopher and poet, who, by the special gift and calling of Almighty God, whether he discoursed on man or nature, failed not to lift up the heart to holy things. Tired not of maintaining the cause of the poor and simple; and so, in perilous times, was raised up to be a chief minister, not only of noblest poesy, but of high and sacred truth. The memorial is placed here by his friends and neighbours in testimony of respect, affection, and gratitude."

"Some monuments are covered with such extraordinary epitaphs," says Addison, "that if it were possible for the dead person to become acquainted with them he would blush at the praises which his friends have bestowed upon him." Who does not remember the inquiry of the little girl while walking through a churchyard,—"Mamma, where are the *naughty* people buried?"

Mr. Kelke has illustrated his book with several sketches of simple sepulchral memorials contributed by architects (Mr. Scott and Mr. Slater), and of these we give two examples.

* John Murray.

† The Churchyard Manual, intended chiefly for Rural Districts. By W. Hastings Kelke, A.B. London: C. Cox, Strand. 1851.

* Printed in "The Friend;" also prefixed to Snow's "Lyra Memorialis."

NOTES IN THE PROVINCES.

Bury.—The Guildhall feoffees have granted a site for a museum. The old "kitchen," adjacent to the Guildhall, will be pulled down, and a new building erected on its foundation. The committee, it is said, have already a much larger collection than belonged to the Ipswich museum when it was first opened.

Doddington.—Mr. G. K. Jarvis, of Doddington Hall, has contributed a memorial stained glass window to the church. This window contains figures nearly life size: in the centre is our Saviour, with St. James and St. John on one side, and St. Peter and St. Andrew on the other. There are, also, some smaller figures in the upper part, representing the Saviour seated on the throne of glory, in the midst of angels in garments of light; while others wing their flight thither, bearing scrolls. The window is supplied by Wailes.

Hatcham.—In respect to a former statemen as to the balance of 300*l.* required for the new church, the architect, Mr. Granville, informs us that the deficiency has reference to the school account. The amount raised out of the 6,000*l.* required for the church is only 1,200*l.* The schools cost 1,200*l.*

Margate.—Damage has recently been done to the jetty, to the extent of 150*l.*, and it is said that of late years it has caused continual expense in keeping it up, to the amount of 300*l.* a-year. A new one is projected, and powers will probably be applied for in the ensuing session of Parliament.

Wells.—A stained glass window, by Mr. Bell, artist in glass, is to be placed in the choir of the cathedral, as a testimonial by the clergy of the diocese to Archdeacon Brymer. The window is of considerable size, and comprises large figures of St. Ambrose, St. Augustine, and St. Athanasius, all of them placed in niches on inscribed pedestals, and surmounted by canopies.

Durrington, Wilts.—The parish church in this village being dilapidated and too small for the accommodation of the parishioners, has been almost entirely rebuilt under the superintendence of Mr. Hugall, architect, and was consecrated by the Bishop of Salisbury on All Saints-day. In removing the old whitewash from the walls many traces of colour were discovered, and on the north wall especially, where a portion of the figure of St. Christopher, a mermaid, some fishes, and a broken wheel were very distinct: tracings were taken of them. In the walls which have been removed several fragments of Norman stone-work were found: these have been preserved in the new walls into which they have been inserted on the outer faces. The old oak pewing has been cut down and formed into open benches, and the nave, with its two aisles, are now filled with these seats. A new font of Norman character has taken the place of the defaced perpendicular one. The chancel has been partly restored, but the fittings, it seems, are of the worst possible description, for which, however, we are told, the architect is not responsible. On the south door is some modern ironwork in character with the Norman doorway, which has been restored to its original position, and the Norman arcade now cleansed from generations of whitewash, stands a perfect memorial of the ancient church.

Weston-super-Mare.—Building operations are in an active state in this thriving watering-place. In addition to a crescent and several villas about to be commenced on Weston-hill, a large piece of ground on the northern division of Locking-road has been broken on for the erection of forty houses, to be called "the New Town." They are designed for small tradesmen and mechanics, and will be rented at from 12*l.* to 15*l.* a year.

Kingscote (*Gloucestershire*).—The church here has been recently restored. Its condition was so dilapidated as to involve the necessity of new roofs, and a rebuilding of part of the walls. It consists of a chancel, nave, north transept, and western tower. The south windows, with that of the east, have been entirely reproduced. The nave has an open frame roof with the chancel. The church has been reseated with oak, new pulpit, brazen desk, and stall seats also of oak. The whole of the chancel windows have been fitted with painted glass by Ward and Nixon. The tower and the other parts of the church have been completely restored. The expense has been partly borne by Col. Kingscote and the parish; the chancel having been done at the expense of the rector, the Rev. A. G. Cornwall. The works have been performed by Messrs. Whitfield and Son, of Wotton-under-Edge, under the direction of Mr. Teulon, of London, architect.

Bath.—The Assembly Rooms have been recently painted and decorated. The vestibule is of a cheerful colour. The columns, &c., are painted a Sienna marble: the cornices and enrichments are relieved with deep tones: the doors are of oak colour. In the ball-room the style of decoration is more elaborate: the walls are panelled, of an apricot colour; the enrichments in Arabesque frieze; entablature and parapet, in various colours. The columns

supporting the frieze have the appearance of ivory: those under the organ are painted an Italian marble. The doors of the room are maple. The whole arrangements have been executed by Mr. Bussell, under the superintendence of Messrs. Manners and Gill, city architects.——On the completion of new warehouses last week, Mr. Titley, instead of a supper, gave to each man that had been employed on the work one month, a fore-spur of bacon and a 6 lb. loaf of bread. Not a bad idea; for the wife and the "childer" would thus come in for their share of the good things. Messrs. Manners and Gill were the architects for the building: Mr. S. Mitchell, contractor: contract, 1,090*l.*

Rotherham.—The completion of a new building for the Savings Bank here was celebrated by a public breakfast at the Town-hall. The Earl of Fitzwilliam, president of the Bank, was present, as were also the Earl and Countess of Effingham and the ladies Charlotte, Dorothy, and Albreda Fitzwilliam.

Mackworth.—The parish Church of Mackworth was re-opened on the 13th inst. by the Bishop of Lichfield. The edifice, according to the *Derbyshire Advertiser*, has been thoroughly repaired, and many of the architectural discrepancies which had from time to time accumulated in its structure removed. As seen externally the alterations consist chiefly in the substitution of a high pitched roof over the nave and chancel, instead of the flat roof which formerly covered them, giving at once greater elevation interiorly, and exteriorly producing a finer harmony with the spire and general design. Where the tracery of the aisle windows had suffered dilapidation, that has been replaced by new mullions, and tracery consonant with the original. The eastern window has been renewed. On the north side of the chancel, a new vestry has been added, but with this exception the alterations have been strictly confined to a repair and restoration of the original features of the edifice. Interiorly the whole of the old plaster work has been removed, and the inside faces of the walls, piers, and arches have been rehewn. The plain flat ceiling has been replaced by an open roof. The nave and aisles have been fitted with open seats. The chancel has been repaired, the floor having been laid with encaustic tiles, and the sides being furnished with two double rows of stalls in carved oak: the step up to the chancel floor, and the two steps from that to the altar are of highly polished Derbyshire grey marble. The floor within the altar rail is of mosaic, executed in Minton's encaustic tiles.

Lichfield.—Notice has been given that application is to be made to Parliament in the ensuing session for the better supplying with water the city and county of the city of Lichfield, and also the borough and foreign of Walsall, and the adjacent parishes and places, all within the county of Stafford. It is proposed to authorise the construction of waterworks and of a reservoir near Trunk-fields, in the parish of St. Michael, Lichfield, and the compulsory taking of all springs and streams arising in and passing through meadows called Pipe-green and Trunk-fields, and all other springs or streams within the parishes and townships of St. Michael, St. Chad, Pipe-hill, Burntwood, Edjall, and Woodhouses, Hammerwich, Farewell and Chorley, Curborough and Elmhurst, in the county of Stafford, and in the county of the city of Lichfield, one or both of them, or any of them.

Huddersfield.—It has been resolved by the Huddersfield Improvement Commissioners to confer with the Ramsden trustees as to the necessity of erecting a suitable townhall for Huddersfield.

Stanley.—The alterations and improvements in Stanley Church are now completed. The expenses, amounting to between 1,000*l.* and 1,100*l.* have been defrayed by Mr. John Maude, of Moor-house. The columns and arches, according to the *Leeds Intelligencer*, have broken the echo, and thereby considerably diminished the difficulty in speaking and hearing. The ceiling has been completely remodelled with timbers of a dark colour. A chancel has been formed out of the body of the church, which is elevated between two and three feet. The whole has been completed by Mr. Moffatt, of Doncaster, architect. The windows have been beautified and improved. The east window of four lights, is occupied by figures of the Evangelists. The figures stand in niches, with diapered grounds, surmounted by canopies and pinnacles, with coloured crockets and finials resting upon blue diapered ground. The tracery lights are filled with architectural foliage in various coloured grounds, two of which are vine-leaf scrolls encircling the medallions. The large west window is obscured glass, with a coloured border to all the lights. The windows and tablets have been executed by Mr. Heald, of Wakefield.

Hull.—The project of erecting a statue to the memory of the patriot, Andrew Marvel, is revived. The directors of the Hull General Cemetery Company, says the *Eastern Counties Herald*, have resolved "that in the event of no better site being found the directors will recommend to their shareholders the grant of a site in the grounds of the cemetery, and, if accepted, a donation of twenty-five guineas to the fund." Other gentlemen, it is stated, are prepared with subscriptions, and Mr. Thomas Earle, a Hull sculptor, has prepared two designs representing Marvel treading on court corruption.

Ormskirk.—The streets have been in total darkness since 4th instant. The gas company require 7s. 6d. per thousand, and the inspectors offer to pay 6s. per thousand. The Board of Health and the public generally have taken part with the inspectors.

Edinburgh.—The John Knox free church, High-street, close beside the house of the Reformer, is progressing, but any effect of the building, it is said, will be lost from its situation, amidst old and unseemly tenements. This has been the fate of the college belonging to the free seceders, from the edifice being wedged in amidst houses, closes, courts, &c. The operations immediately under Shakspeare-square, connected with the North British Railway, include a large flight of steps and piece of road. The steps are nearly constructed, and strong iron girders are being erected to sustain the footpath. The work is raised to some elevation close to the vaulted apartments of the bridge, formerly used as hay lofts. Building operations, too, at Spittal-street, on the ground formerly belonging to the Improvement Commissioners, are being extended. The buildings are of freestone. The new buildings in Preston-street are finished, and by far the larger portion of the north side of this street is now completed.

Brechin.—The new united Presbyterian chapel, in Mill-street, according to a local paper, has been opened. The architecture is by Mr. J. D. Peddie, of Edinburgh. The building presents a front to the street of about 60 feet in length, consisting of a huge central gable and two side ones, with buttresses and towers, containing mouldings. The interior presents a cruciform appearance, having a central nave and side galleries in the transverse. The house is heated and ventilated by a heated air stove, fitted up by Mr. Smibert, of Leith. The contractors for the mason work were Messrs. Brand and Taylor, and for the wright work Messrs. Gordon and Scott.——There is a new paper work in course of erection in this town: it is to have a chimney stalk 106 feet high. The builder is Mr. Baxter. A coach factory of three stories is also in course of erection.

Paisley.—A Glasgow paper says that, notwithstanding the depression in trade, laboured under for several months, there is scarcely a single house usually occupied by the better class of operatives to be obtained at this term. Even matrimony itself had to be eschewed for want of a dwelling. This is accounted for chiefly from a large influx of block printers, who, as a rule, generally inhabit the better class of working men's houses. Many of the houses, as they presently stand, are said to be a disgrace to the town.

Golspie.—A monument in memory of the late Duchess Countess of Sutherland, erected by tenantry and others connected with the county, at a cost of about 700*l.* has just been completed. The fountain is of blue granite, the vase over the upper basin and the ball on the top being of polished red granite. The roading from the fountain to the village, a distance of about 300 yards, has been improved and widened. Water is to be introduced immediately into Golspie from the fountain. Pipes from it are to be brought to the village, and laid along the street.——The parish church of Golspie, it is said, is to be shortly improved.

THE INTRAMURAL INTERMENT QUESTION.

On Monday last a deputation from the Metropolitan Sanitary Association (which, by the way, ought to receive more support from the public than it does), had an interview with Lord John Russell and the Chancellor of the Exchequer, to present a memorial "calling his lordship's attention to the continuance of interment within the metropolis, notwithstanding the existence for more than fifteen months of an Act of Parliament passed by unusually large majorities, by which her Majesty's Government were empowered to remedy the evils and guard against the dangers proved to attend the burial of the dead among the living."

The memorial (which was of considerable length) further set forth—

"That the difficulties which have prevented the execution of the Interment Act might have been obviated by provisions which cannot in any fairness be considered extraordinary, since they need be such only as would carry into effect the evident intentions of the Legislature as indicated by that enactment. The difficulty as to the security of mortgages of the rate would have been met by providing that the authority empowered to levy that rate should have perpetual succession. It appears absurd to suppose that Parliament, which provides a rate as a collateral security for moneys to be borrowed, would object to making that security valid.

The other difficulty that was raised, viz., that persons might evade their contributions towards the general expense of the scheme by interring their deceased friends in places of interment just outside the metropolitan district, other than those to be provided by the Board, might have been met by providing, as was evidently the intention of Parliament, that no new cemeteries should be established within the immediate neighbourhood of the metropolis, except by authority; and it cannot be supposed that Parliament would refuse to guard against the creation of fresh nuisances, which, without such a provision, might be expected.

The association trust that your Lordship will recognize the justice of the complaint of those who, having taken an active part in endeavouring to secure a remedy for what they knew to be enormous evils, and having, as they conceived, succeeded, by obtaining a statutory provision adequate to put an end to them, now find, that by the questions which have been raised, and by the delay consequent thereon, the law has been rendered a dead letter.

The Board appointed to administer the Act have repeatedly stated that the difficulties by which it is beset are not insurmountable; and your memorialists deeply deplore that the means for carrying its provisions into execution should be withheld, and that it should be set aside without trial, and, so far as the public are aware, without inquiry, after so much time, labour, and public money have been spent in maturing such a scheme, and after its deliberate and almost unanimous adoption by Parliament; while the evils for which it seems to provide a sufficient remedy are permitted to go on, and do go on with undiminished intensity."

The Bishop of London (who headed the deputation) presented the memorial, and addressed the Premier at some length, pointing out the evils that were caused by the delay in carrying out the measure, and the necessity of coming to a decision some way or another. One great advantage of the plan proposed by the Board of Health, and, as had been supposed, sanctioned by the Government and by Parliament, was, that the poor would be able to bury their relatives decently and with proper solemnity at an expense not much exceeding one-third of what was now paid for that burial which could not be called duly solemn or even decent. It would appear that towards the conclusion of last session the Chancellor of the

Exchequer threw a certain amount of discouragement—to use a popular phrase, "threw cold water"—upon the plan, and led the Board of Health to fear that they should not be able to carry it out; and it was intimated that another measure would be brought forward, more in accordance with the views of those who had always opposed this great sanitary measure. His opinion was, that it could never be effectually dealt with except by the Government, and that a board not acting with the authority of the Government, and responsible to the Government, could never carry into effect the complicated and delicate measures necessary. He hoped he should be excused if he mentioned a rumour which was abroad, that it was the intention of the Government to constitute a new board for carrying into effect the object of extramural interment, such board to have also the control of the sewerage and water supply of the metropolis. Surely these were matters which ought to be kept distinct and separate from one another. It was difficult to conceive anything more calculated to offend the people—he had been going to say to disgust them—to wound some of their best feelings, than placing under one body the interment of the dead and the sweeping of the streets and cleansing the sewers, to say nothing of the subject of water supply. He hoped the rumour was not true, and that the interment of the dead—probably in itself nearly, if not quite sufficient to occupy the whole attention of a board—would be placed under men who would deal with it with the seriousness and consideration which its importance required. For himself, he must say, too, he should be grieved to see the conduct of it taken out of the hands of gentlemen so highly qualified to manage it as the members of the Board of Health.

Mr. Godwin, F.R.S., followed with some observations upon the extreme importance of discontinuing the burial of the dead in the midst of the living, and the impossibility of preventing the escape of the deleterious gases thus generated. It was not to be supposed that because we had not had cholera the graveyards were not doing their work: low fever and typhus fever were for the most part preventible, and a serious responsibility rested upon those who by exertion had the power very much to prevent them and did not do so. It could not be necessary now, when scientific men had proved the evils,—when the Legislature had said by Act of Parliament, "it is expedient to make better provision for the interment of the dead,"—to point out the crying want; and yet here we were fifteen months after the passing of the Act and positively nothing real had been done. The speaker alluded to the surprise expressed out of doors that Government should be willing to allow money to be borrowed from assurance companies at five per cent. when they could obtain it for half by exchequer bills; and discussed briefly the plan proposed by the Board of Health.

Mr. C. J. F. Lord, Mr. Walsh, and others having made some brief observations,

Lord John Russell said, that the difficulties which had occurred were very much difficulties of detail; and questions of this kind, where all might agree upon the principle, depended very much upon the details. The Board of Health had gone into great detail, and it was said their scheme was a very good one. But he found that, when they tried to follow it out, so as to make it practically work, they could come to no other conclusion than that the body intrusted with interment should entirely take it upon itself. Government had a great deal to do, and undertaking to be answerable for the removal and burial of every dead body in a population of 2,000,000, was really a serious matter. With regard to the cemeteries, he believed those which they had engaged to buy, in order to meet any great calamity or pestilence that might befal us, were calculated to inter about 6,000 in a year; it was stated that the whole mortality of London amounted to 58,000 or 60,000, and, therefore, they would evidently not supply the means of burial for the whole, and it would be necessary to go much further, and buy all the cemeteries. It was asked, why was not something immediately done? He would say the Government had not the power to do it. The Board of Health had supposed they should be able to procure money immediately to purchase the whole of the cemeteries: they found themselves mistaken in that, and that it could only be done by applying to the credit of the Government. No power had been taken to purchase more than the two cemeteries, and it would require an Act of Parliament to enable more to be procured. He would now ask Sir C. Wood to state the way in which the question stood at present.

The Chancellor of the Exchequer observed, that in the beginning of the year, he believed, the Board of Health sent in a proposal to the Treasury, whose consent was necessary, to buy all the existing cemeteries, and an estimate which seemed to be very small. He (the Chancellor of the Exchequer) made some inquiries through the Woods and Forests, and satisfied himself that the sum required would be three or four times as much as this estimate. It was, however, stated substantially that no good could be done unless the whole were bought. Then came the question how the money was to be provided. The whole matter having gone upon the principle that the Government was not to advance sixpence—there being no power in the Act to do so—the question was how the board could borrow. They said they could borrow from assurance companies. They had proceeded all along with the full knowledge that the Act contained no power for the Government to make advances, that that was not the principle of the Act, and that they were not to have Exchequer bills, but to get the money from other sources. Well, why could they not borrow? Because they had no power of insuring the payment of a fee; and they came to this conclusion—"Unless we have the management of all the burials in London, and within fifty miles round it, with a power of charging a fee upon every death, whether the corpse is buried by us or not, we cannot borrow money." Now, that was a very serious power. It was near the end of the session, and he (the Chancellor of the Exchequer) thought it was a power which it was not reasonable, at the end of July or beginning of August, to ask Parliament to give. Unless they had that, the board said they were not sure of a sufficient income to enable them to borrow the money. However, power was applied for to warrant an advance of money to buy two cemeteries, for which the board had engaged in negociation; and either or both might be taken. He might remark that in Edinburgh no one was buried within the city, but the whole was managed by cemetery companies; therefore it did not seem so absolutely impossible to be done by private parties.

In reply to Mr. Godwin, who asked how long the question was to remain in this unsettled state, and whether or not the deputation might give assurance to the public that the Government saw the importance of carrying out the measure,

Lord John Russell said that the matter must remain till next session; that they felt the importance of the object; but that the manner of carrying it into effect was a matter for consideration.

The inference we are compelled to draw is, that the Government do not intend to enable the Board of Health to carry out the present Act. It certainly seems strange for a Government to say, fifteen months after passing an Act to settle *how* a desired object shall be carried out, that the mode of doing this has yet to be considered. We shall not be much astonished, however grieved, if the whole fight has to be fought again.

THE PROPOSED ARCHITECTURAL EXHIBITION AND COLLECTION OF INVENTIONS.

As a well-wisher to the efforts now making to establish the Architectural Exhibition on a lasting basis, permit me, through the medium of your widely-circulated journal, to draw earnest attention to these endeavours. The committee may make all exertion, and their officers may spare no pains or trouble, but the whole will be comparatively in vain, if the profession linger in apathetic indifference, careless as to the result, and unmindful of their own advantage.

While it has always been acknowledged that an exhibition of this kind is calculated to improve and extend public taste in this branch of art, and so to benefit its professors and raise them in public estimation, the cause suffered some injury from the erroneous impression that to support this Exhibition was necessary hostility to the Royal Academy. That idea is now happily exploded: the fact is, that if all the architectural works done in each year were brought before the public, they would fill all the galleries in Trafalgar-square, and it would be preposterous to suppose that the finding the necessary accommodation elsewhere can be objected to, much less be made an excuse for driving out the one art altogether, whenever the nation may provide a fitting place of reception for all.

I am glad to observe, by the published circulars, that the committee are not looking for elaborate pictures; that clear intelligible drawings are all that are wanted; and how easy would it be if, when a set of designs were made, one fair view was executed with a little increase of care, and set aside "for the next Exhibition:" there would be no extra labour or expense; and if I may judge from the amount of building carried on in this great country, we might fill the Portland Galleries three times over. Again, I hope we shall see a goodly number of competition drawings. A competition never occurs but we hear complaints of unfair usage: here there is an open court in which the proofs may be brought forward: let them be hung in sets: let us have all the designs for the numerous competitions during the past year, and let the public and the profession judge the right and the wrong: without doubt, if this be followed out, it will be a most important auxiliary to the competition committee.

The committee have conferred a great boon on all by endeavouring to unite a museum of inventions and all other things connected with building matters to the exhibition: how inventors and others will respond to this important appeal remains to be seen. We have always wanted some place where such things could be collected together for deliberate inspection: a detailed description should be inserted in the catalogues, and they would be preserved for future reference. Will the committee admit lithographs? I think they should, if printed privately only and not published: they might easily be kept by themselves and would assuredly be of public interest: they are but drawings on stone instead of paper and ought not to be shut out. I have heard it is also contemplated to have a table set apart for architectural works, so that many which are little known would be immediately brought into public notice, and their sale no doubt increased.

I trust, Sir, you will keep attention alive to this important subject: let us all do what we can—as well country as London architects,—and those who cannot help in the exhibition may at least send their guinea or half-guinea subscription, for expenses in first establishing anything of this kind are always heavy. But let us, above all, make the exhibition of public interest, and in a year or two it will support itself.

A Subscriber.

THAMES BRIDGES.

If we are to have a new bridge at Westminster, is it not of the greatest importance that both those disgraceful erections, Putney and Battersea bridges, should be cleared away as soon as possible, and others substituted? One is doomed; but since the volume of water, and its direction, will be affected by their removal, whenever it may take place, it appears to me very desirable that there should be a united effort to get rid of them altogether, and at once.

That the bridges in question are a great hindrance to the free navigation of the river all will allow, and no one feels it more than myself. Were they removed, I should not hesitate to fit vessels to bring direct to my wharf heavy building materials such as slates, Portland and Caen stone, &c., &c., instead of having to unload below bridge, and lighter them up.

The poor river stands very little chance of competing with the rail unless every improvement that can be effected is promoted by the Thames authorities, and other interested parties. You will see that it is a question of vital importance to the owners and occupiers of wharves within reach of the tideway; for, clear away the bridges in question, and we can have up, *direct*, coals and every other description of heavy goods.

But the great question now is,—*what will be the effect upon the foundations of the present bridges, and those to be erected, by the removal of those at Battersea and Putney?*

B. E.

THE OXFORD DIOCESAN TRAINING SCHOOL.

The Oxford Diocesan Training School, founded at the end of October last, at Culham, as we mentioned at the time, is in style Late Decorated, and in plan is quadrangular. The range forming the south front is bounded at one end by the chapel, which stands out from the chief line of the building, and is connected with it by a corridor and cloisters. The interior of the chapel is to be arranged stall-wise, the seats fronting north and south. The principal front on either side of the central entrance consists of a great dining-hall and schoolroom, each 58 feet by 20 in dimensions. The dining-hall will be fitted up with large fire-places, and the apartment lined with oak. The eastern wing of the building is to consist of three large class-rooms and the master's sitting-rooms: the western wing is to be appropriated to the principal offices of the establishment. The second floor will consist of dormitories for 100 pupils, the space devoted to this purpose extending throughout three sides of the entire building, and a separate dormitory being provided for each individual, with a window. The staircases are to be of stone, and the floors formed with Messrs. Fox and Barrett's patent. The walls are constructed of Marcham stone, backed up with brickwork. The windows of the south front will be trefoil-headed, in accordance with the general character of the design. Over the principal entrance the arms of the See of Oxford will be placed, as expressive of the character and destined purposes of the building.

The centre of the building is to be laid out as a large open square, with an ambulatory on three of its sides. It is designed to occupy the fourth side of this square with the Practising Schools, and a Yeoman's School.

A terrace, 36 feet in width, will extend along the entire south front of the building, and will be reached by a carriage-way from the Abingdon-road.

The building is adapted for the accommodation of 100 students, and four or five assistant masters, besides the principal, for whom, as indicated in the above sketch of the arrangements, a separate residence will be provided in the interior. The estimated cost of the work is 16,000*l.*, of which the larger portion has been raised by diocesan subscriptions, assisted by the Committee of Council on Education and the National Society.

The architect of the building is Mr. Joseph Clarke, of London; and the contractor, Mr. George Myers.

THE RECORDS OF THE GREAT EXHIBITION.

Great Exhibition of the Works of Industry of all Nations, 1851. *Official Descriptive and Illustrated Catalogue.* By authority of the Royal Commission. In three volumes. London: Spicer, Brothers, Wholesale Stationers: W. Clowes and Sons, Printers. 1851.

It is almost a pity this unprecedented work has been called a catalogue: indeed, it is a sort of anachronism to term it so; considering that the Commissioners are only placing it before the world with one hand, while closing the Exhibition gates with the other. A perpetual memento — a standard "official record"—it is, however, of the noblest effort—the highest reach—the grandest display of human progress ever made. And this it is, not merely as a matter-of-fact enumeration of the world-wide wealth of which it contains the inventory; but as a work of reference and instruction, taste and invention, the fruit of thousands of brains —nay, the composition of thousands of pens; for this is a cosmopolitan production, which the commission and its editors, annotators, and compilers have only aided in ushering into the world in orderly unity and condensation. The labours of these latter, however, have contributed immensely to its value; and the importance of the whole compendium could not be otherwise than vastly enhanced by a list of labourers on it such as the following:—

"ANNOTATORS OF THE CATALOGUE.

"Professor Owen, F.R.S.; Baron Justus Liebig, F.R.S.; Professor Lindley, F.R.S.; Professor Forbes Royle, F.R.S.; Professor Bell, F.R.S., Sec. R.S.; Professor E. Forbes, F.R.S.; Professor Ansted, F.R.S.; Professor Hosking; Professor A. De Morgan, M.A.; Philip Pusey, M.P., F.R.S.; Rev. J. Barlow, F.R.S.; Rev. J. Booth, F.R.S.; Capt. L. L. Boscawen Ibbetson, F.R.S.; James Glaisher, F.R.S.; J. E. Gray, F.R.S.; Robert Hunt, Keeper of Mining Records; Robert Ellis, F.L.S.; Samuel Clegg, Jun., F.G.S.; W. De la Rue, F.R.S.; J. Spurgin, M.D.; John Wilson, F.R.S.E.; Henry Dibdin; W. C. Aitken; H. Maudslay, C.E.; Robert Hendrie, Jun.; J. A. Nicholay.

Official revision and sanction for publication by Lieut.-Col. J. A. Lloyd, F.R.S. Scientific revision and preparation by Robert Ellis, F.L.S. Historical introduction by Henry Cole. Construction of the building by M. Digby Wyatt, C.E., F.R.I.B.A. Classification of subjects in the thirty classes into which the Exhibition is divided, by Dr. Lyon Playfair, F.R.S. Compilation and preparation of the Abridged Catalogue by G. W. Yapp.

Technical information and assistance have also been rendered by Mr. G. Taylor, Mr. T. Battam, Professor Wallace, M.A., Mr. C. Tomlinson, Mr. John Graham, Mr. E. H. Denison, and other gentlemen. Much valuable information and assistance have also been kindly furnished by the Royal Commissioners for several of the Foreign States exhibiting. Their contributions have been inserted partly in the form of notes, and occasionally in that of a short introduction."

In a modest essay on the "Scientific Revision and Preparation of the Catalogue," Mr. Ellis gives an account of the circumstances under which the work was published. Amongst these circumstances not the least remarkable is the fact that the greater portion of it was actually in type before the opening of the Exhibition on the 1st of May. The Catalogue then published was but an abstract of this work as it then stood, without the bulk of those labours which have been ever since in course of expenditure on its collaboration. Into these circumstances and labours, however, we cannot enter further yet.

To one peculiar feature of the work attention ought to be specially directed. This is the fact that it embodies, to a large extent, *the Science of Commerce*. In this first edition we have already a comprehensive and so far successful endeavour to convert the changing and inaccurate conventional terms of trade into the precise and enduring expressions of science. As an instance, we may mention the woods employed for furniture, which are enumerated, with their commercial names, their Latin names, their native habitats, and the uses to which they are applicable. Mr. Ellis, in the essay just referred to, while remarking on this peculiar feature of the record, says:—

"In the present edition of this work, prepared as it has necessarily been under highly unfavourable circumstances as to accuracy and correction, this attempt may not be as successful as in future editions; but such arrangements are made, in order to obtain this important and valuable result, as will render future editions of this Catalogue permanently valuable in this respect, not only to the naturalist but also to commercial men. That this feature of the Catalogue will not be without its fruit in the promotion of the objects of industry, may be expected from the knowledge of the fact, that hitherto, in consequence of the absence of such information in a collected form, the greatest difficulties have been experienced by commercial men in their endeavours to introduce into trade any new material of industrial importance, or to obtain adequate supplies of materials already known, but known under a variety of changing, local, and unintelligible terms. In the seventeenth century, Robert Boyle perceived the important results likely to arise from the 'naturalist's insight into trades.' It may be hoped that such results will not fail of their accomplishment."

As to accuracy and correction, these are but relative terms: so long as human nature has not reached the pinnacle of perfection, absolute accuracy and immaculate correctness in such a work never will be reached. Moreover, the most likely of all to reach the farthest towards so unattainable a point are precisely those who will be most diffident of their own abilities and success. The present edition of this great design is in itself a great work, whatever shortcomings it may display to the eye of minute criticism. We, for our own part, would have certainly desired to have seen every *illustration* of such a work worthy of the work itself; but we suspect that imperfection in this respect, at least, was necessarily and unavoidably involved in the very rules and arrangements the strict observance of which alone rendered its existence possible at all. The Illustrations, no less than the Catalogue, may be said to be the work of the exhibitors themselves, though subject, like it, to the decision of the executive commission and the other authorities engaged in the preparation of the whole: this will more clearly appear from the following regulation:—

"Her Majesty's Commissioners have consented to allow illustrations of articles exhibited to be inserted in the large Catalogue, after approval by the Executive Committee. Exhibitors desirous to avail themselves of this privilege must communicate their intention of providing the illustrations, and state their character, whether engraving on wood, on steel, or lithography."

More than one-third of the first volume is devoted to various preliminary subjects, though followed up by nearly 500 pages of the Catalogue and its annotations, some of the latter of which are complete essays in themselves. Following on the Preface and General Contents, an immense List of Illustrations, and other matters, is an Alphabetical and Classified List of the Articles described in the Catalogue, which must prove of important service in consulting the great body of the work. Then follows an index of the names of exhibitors and others; and next the Introduction, in which Mr. Henry Cole enters at large into the history of the great idea of the International Exhibition. The next essay is one on the Construction of the Building by Mr. M. Digby Wyatt, with illustrations. There is also a classification of subjects in the thirty classes into which the Exhibition is divided, and a directorial list of commissioners, jurors, &c.

Besides the briefer annotations in the body of the work, as already remarked, there are entire and valuable essays, as on iron, on mineral fuel, mining and mineral products, and various other subjects, including formal introductions to different sections and nations, and a vast mass of other matter, the whole constituting a body of *Commercial Science*, such as must prove to be not only invaluable, but henceforth indispensable to men of all branches of trade, art, science, and industrial pursuits in general, throughout the whole world, and vastly promotive of all the ends and objects of industry in art and science themselves. Translations of the work into every language in which commerce is more or less extensively carried on, we should think, must eventually be demanded and supplied, and, spite of the extent and cost of such a work, we should not wonder to find it sold in thousands of copies abroad as well as at home.

The Potteries School of Design.—The fourth annual meeting of this school was held at Stoke-upon-Trent on Monday in week before last, Mr. J. A. Wise in the chair. The master's report stated that the school made good progress. The number of students on the books for the present month of November was as follows:—At the Stoke school, 69 male students, and 42 female; total, 111. At the Hanley school, males, 75,—females, 23; total, 98; making the entire number of students in the two schools, 209. It was thought there was every prospect of the schools attaining an increased development. The number of pupils was on the increase, and Government had liberally appointed an assistant master to each school. The report of the council of management, however, complained of the state of the finances, the institution being 100*l.* in debt. An appeal was made to the public of the district for increased support. The chairman in his address recommended to young artists the perusal of Mr. Wornum's late essay on "The Great Exhibition as a lesson of taste." The meeting was afterwards addressed by Mr. Child, M.P.; Mr. Ridgway, and other gentlemen.

THE OXFORD DIOCESAN TRAINING SCHOOL.—Mr. J. Clarke, Architect.

SIGHTS AND SCENERY.

The Haymarket Theatre.—Mr. Webster has strengthened his company by the addition of Mrs. Stirling, Mr. L. Murray, and others. Mr. Vandenhoff and Miss Vandenhoff are to come. At the present moment, opera, with Miss Pyne for a charming *prima donna*, and roaring Buckstone-farces, alternating with some of the comedies of last season, fill the house. The scenic artists here should rub-up a little.

Princess's Theatre.—The production of the "Merry Wives of Windsor," in the costume of the reign of Henry IV., is a novelty. This play, for which, by the way, we care less than for any other that Shakspeare wrote, is essentially an Elizabethan play, and has always been dressed as such, notwithstanding that the "fat knight" had been assigned by the author to an earlier reign in other plays. As, at the Princess's Theatre, however, one of these earlier plays is running alternately with the "Merry Wives," the management were led to change the conventional period of the latter, and make it accord with the first. This has been done with very considerable success, although it does not follow that the date now given to the play will be retained in future when revived elsewhere: the construction and characters of the drama unquestionably belong to Shakspeare's own time. It is the same in some other of his plays, but a proper consideration of the subject would involve a longer disquisition than we may now attempt. Mr. Kean plays *Ford* well. For a pleasant little comedy, called "Tender Precautions, or the Romance of Marriage," capitally acted by Mr. and Mrs. Keeley, and Mr. and Mrs. Wigan, a very complete room scene is provided, with all the fittings and elegancies in the way of decoration which belong to the residence of a man well to do in the world.

Jullien's Concerts.—A rare sight is Drury-lane Theatre every night,—filled up to the ceiling in every available corner to listen to good music at small cost. Preparations for the decoration of the house for the ensuing campaign are being made, we understand, in various workshops.

FOREIGN ARCHITECTURAL AND ARTISTICAL INTELLIGENCE.

Opening of the Cité Ouvrière (Napoléon) Paris.—This new undertaking, conducted by M. Aubled, architect, was opened on the 17th inst., with some appropriate festivity. The financial means have not been obtained but with some difficulty, and the part inhabited consists of 96 lodgings and some shops. The rents have been fixed at a little *less* than the usual price of similar dwellings in the neighbourhood, although the arrangements are much *better;* hence it appears to what undue height the whole present rent system has been pushed. The *yearly* rent of a lodging varies from 60 f. to 180 f. (2*l.* 8s. to 7*l.* 4s.). For the latter sum the accommodation consists of two rooms, well lighted and aired—in fact, comfortable and healthy—together with a small passage, where the kitchen is situated. The staircase also is laid out without stint of space, and affords a comfortable communication to all parts of the house. At present the Cité Ouvrière contains about 250 lodgers. The works of the other parts of the building are progressed with, and will contain a lavatory, baths, and other conveniences for the number of 500 lodgers, which is the full complement calculated upon. Those establishments founded in England on philanthropical grounds, seem to be a good speculation, and to yield an ample profit. The Cité Ouvrière of Paris will cost 650,000 francs, and will make an annual return of 40,000 francs. But our French contemporaries observe that in such cases, where the income is certain, and subject to no chance, Government should not allow the societies or companies erecting such houses to charge more than the usual interest of 5 per cent., whereby either the rents would become lower than they are now, or the accommodation superior, &c. After all, the Cité Ouvrière in Paris has contributed to the solution of a great social problem, hitherto considered quite out of the reach of possibility, *viz.*, that such and similar popular establishments will, if judiciously undertaken and honestly administered, yield an adequate return for the capital employed therein; and the sentiments pervading the speeches delivered at the opening of the Cité Ouvrière in Paris were to the purpose that such establishments may soon extend to Lyons, Bordeaux, Lille, &c., in fact, to all places where hitherto the people had to live in localities unfit and unworthy of men.

Florence.—Discovery of Frescoes by Giotto.—Professor Charles Morelli, of Florence, having received from the friars of the church of Santa Croce, the order to execute some paintings in the chapel dedicated to St. Francis, belonging to the Giucciardini family, found under the layers of whitewash which he had to remove, the traces of the work of the above great master. This discovery was immediately communicated to the President of the Academy of Fine Arts, M. del Monte, as an event most propitious. In the meanwhile M. Morelli succeeded in disentombing, as it were, about twenty full length figures and several heads of saints, all bespeaking the character and genius of Giotto. What increases the importance of this discovery is the circumstance, that *Vasari* has accurately described this fresco, which represents scenes of the life of St. Francis. The work of completely uncovering this fine relic is in active operation.——M. Durand, a skilful French designer, is preparing an Archæological Album of Tuscany, which will comprise the finest monuments of the Florentine Commonwealth, designed in a superior style. It is the Russian Prince Demidoff, under whose patronage this gem of art-production is undertaken.

The New "Granarium," Frankfort-on-the-Maine.—This new edifice, destined as a general *entrepôt* of the German and Dutch English corn trade, is in a fair progress. The Chamber of Commerce of Frankfort have proposed to the Senate to guarantee the loan of 300,000 florins (28,000*l.*) at four per cent. for the erection of this great building. M. Rigaud, the projector of the Granarium, has just published a pamphlet, explaining the advantages of position, &c. Frankfort lies in the axis of the whole German railway net not distant from the Rhine, as well as near the Maine and Ludwig's canals, whose shippers will find a return-freight at Frankfort, this being a great *entrepôt* for British and colonial goods. The building is to be erected on the bank of the Maine, near the Western line terminus.

THE STATIONERS' COMPANY'S ALMANACS.

LAST Saturday (22nd) was what was called "Almanac Day" at Stationers' Hall, when thousands upon thousands of those useful companions were sent off east, west, north, and south; and by this time have been distributed amongst gentle and simple far and wide. For a long time this company had nearly a monopoly of learning, but are now only publishers of almanacs, and even as to these have not the exclusive privilege. Charles Knight, who has sketched the history of the company in his "Cyclopædia of London," tells how that one Carnan, in St. Paul's-churchyard, at the close of the last century, would insist upon his right to publish an almanac in spite of the company, and was annually thrown into prison for so doing. This became so regular a thing that he always kept a clean shirt in his pocket, ready for a decent appearance before the magistrates and the keepers of the gaol at Newgate. Ultimately he gained the battle, and opened the trade.

The company, however, still remain pre-eminent in this department, and their publications command an enormous sale, and bring a large revenue. The number of freemen is between 1,000 and 1,100; of the livery about 450. The proprietary consists of a portion of the latter, who hold shares, about 350 in number, representing a capital of about 40,000*l.* A share may be bequeathed to a widow, but no further. As the shares fall in, they are apportioned nominally by election, but virtually in order of seniority.

We have before us a bundle of their new calendars, "The Englishman's and Family Almanack" (containing much useful information), "Goldsmith's Almanac," "The Gardener's Almanack" (a capital publication, edited by Mr. G. W. Johnson), "Moore's Almanac Improved," and last, not least, no doubt, in their estimation, Moore's "Vox Stellarum." We should scarcely have expected to have found in the 19th century an almanack put forth by a grave City company, containing such *predictions* as we find therein; but we suppose the company take a business view of the question, and that the enormous sale of the almanac, about 400,000 copies, is their excuse for so doing. With this blot we find much that is useful, especially to our country readers.

EXPERIMENTS ON THE STRENGTH OF WROUGHT OR ROLLED IRON JOISTS.

MESSRS. FOX and BARRETT have just introduced rolled iron joists as a substitute for cast-iron in the construction of their fire-proof floors, designed with a view to bring the expense to the same as those of cast-iron, and thus render fire-proof construction with joists of *wrought-iron* as inexpensive, according to their statement, as the ordinary timber floors.

On the 25th, some experiments were made on joists of two sizes, at the Baths and Wash-houses which are now being erected for the parish of St. James, in Dufoure's-place, Poland-street. The weight was applied through a lever. The following particulars have been furnished to us.

The smaller of the two joists was 5½ in. deep, and ⅜ in. thick, with flange top and bottom, 1¾ in. wide.

Length of joists.....	17 ft. 0 in.
Width of bearing	16 0
Weight per foot run ..	10¼ lb.

Load on Centre.	Deflection.	Weight per sq. ft. of floor which the load is equivalent to.
12 cwt.	·65.....	112 lb. per ft.
15	·8	140 ,,
18 .....1·0		168* ,,
28 .....1·45.....		260† ,,

The larger joist was 7 in. deep, and $\frac{7}{16}$ in. thick, with flange top and bottom, 2½ in. wide.

Length of joist.....	17 ft. 0 in.
Width of bearing	16 0
Weight per foot run ..	16½ lb.

Load on Centre.	Deflection.	Weight per sq. ft. of floor which the load is equivalent to.
12 cwt. .. 0·42		112 lb. per ft.
28	·785	260 ,,
32	·9	300* ,,
40 ..... 1·1		370‡ ,,

HARRISON'S ELECTRO-MAGNETIC ENGINE.—This patented engine is said to act "on the principle of the induced magnetic power of a compound coil or coils of insulated wire conveying a current of galvanic electricity, which acts upon and draws within a suitable aperture, or repels therefrom, a plate or a series of plates of soft iron, or a body of wire, or permanent steel magnets." Two important advantages are said to be gained by this arrangement. 1, in altogether avoiding the retarding influence of electro-magnets acting on each other after the battery current has been cut off; 2, that the effect of secondary currents is very much reduced; and where permanent magnets are employed to pass within the coils, the induced current augments the primary current, and thus a considerable saving in the consumption of the materials of the battery is effected. The patentees point out other advantages, and they assert that they obtain motive power at as cheap or cheaper a rate, and much more advantageously, than by steam.

* Up to this point the elasticity of the metal was uninjured.

† Permanent set on removal of load, ·075. A load of 18 cwt. on the centre was left on 18 hours, but produced scarcely any perceptible difference.

‡ Permanent set on removal of load, ·062.

OPEN PARAPETS.

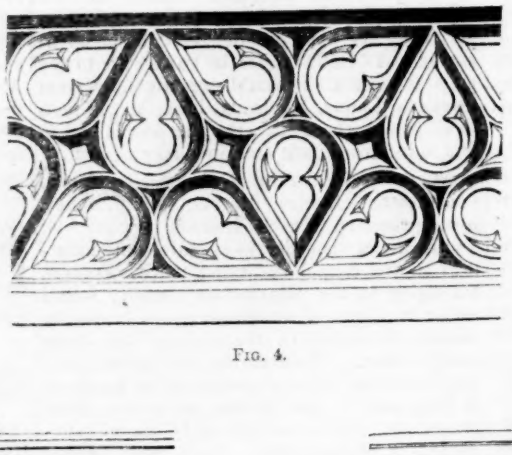
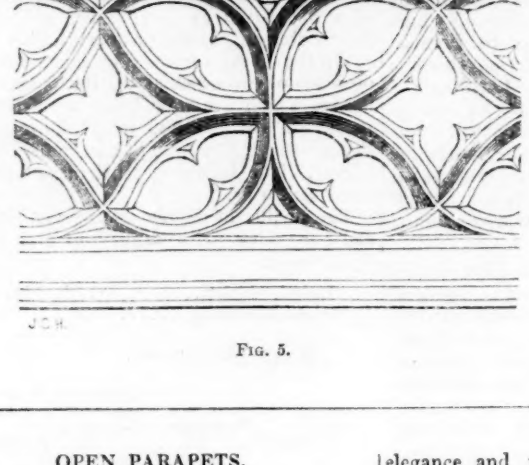
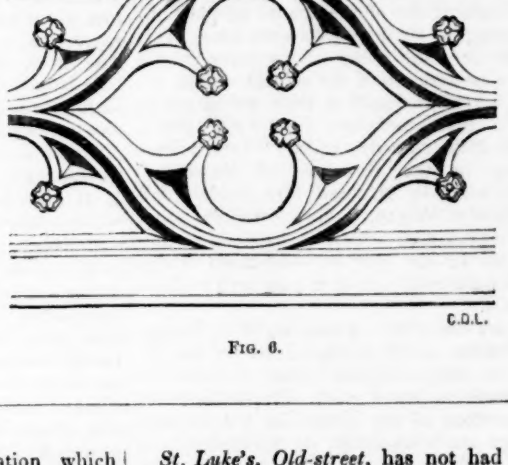


Fig. 4.



J.G.H.

Fig. 5.



C.D.L.

Fig. 6.

OPEN PARAPETS.

We this week give some specimens of open parapet, in addition to those engraved in a recent number.

No. 4 is from the cathedral of Evreux, and Nos. 5 and 6 are from the churches of St. Gilles and St. Pierre, at Caen, that Oxford of archæological France.

The province of Normandy abounds with this beautiful ornament, which Rickman, with his usual acumen, pronounced to be characteristics of French architecture.

There is a fine early specimen at the interesting ruins of the Abbaye d'Ardennes, and a later one at the church of St. Michael, at Vancelles, both near Caen. J. G. H.

LONDON CHURCHES RE-OPENED.

CHRIST CHURCH, SPITALFIELDS.

Your correspondent, Mr. Parry, in giving a description of six churches in London, which have been either lately reopened, or are now under repair, has omitted a *seventh*, which claims an equal, if not a more extended, notice with those which he names; not only on account of its merits as a piece of architecture and as being the best specimen of the peculiar style of its architect, but from the nature and amount of the works being executed in improvements and general repairs, and that at no inconsiderable expense. I allude to Christ Church, Spitalfields, one of the fifty-two churches, built in the reign of Queen Anne, designed by Nicholas Hawkesmoor, pupil of Sir Christopher Wren. In most of his works, the element of power is strongly developed, arising from the ponderous masses of masonry, extensive flat surfaces, mixed with intricate multangular figures, and minute perforations which are their characteristics. But in Christ Church, the influence of his master's mind is very strongly to be noticed: with an exterior massive and commanding, it possesses a striking interior; with a grandeur of proportion, propriety of distribution, and an elegance and variety of decoration which render it the most pleasing and elegant church which he erected. A thorough internal restoration has been made, the stone work (of Portland) has been cleaned from the paint, rubbed down, and reworked to a fair surface. The innovations made at various times in the oak fittings have been removed, and the original character of the screenwork restored.

Great improvements are being made in the chancel, the walls of which will receive a decoration in colour. The wooden altar-piece, which consisted of Doric columns and entablature, painted and grained in the most approved imitation marble fashion (evidently subsequent to the erection of the church) has been removed, and will be replaced by a reredos of Caen stone, highly enriched with carvings emblematical of the Eucharist, and having a basso-relievo of the Lord's Supper, taken from the celebrated cartoon of Leonardo da Vinci.

A considerable outlay has been made upon the organ, which will place it upon an equality with any in London.

So much zeal has been manifested in carrying out these works, by the rector and the churchwardens, that it appeared a want of recognition of their disinterested services, if in an account of London churches under repair, the works in progress at Christ Church were omitted from the list. T. Y. jun.

As to Mr. Parry's paper on "London Churches re-opened,"* I would say two or three words:—

St. Andrew's, Holborn.—The altar table, of marble and iron, in steps or stages, was not "placed here some six years ago," but is of the age of Sacheverell, who is buried below the altar. The "steps or stages" are not "strange," but are the ordinary super-altar, arranged for candlesticks, &c., which formerly stood here.

* See p. 719, *ante*.

St. Luke's, Old-street, has not had "some old stained glass placed in the chancel window." This glass—a very clever imitation of the coarse Dutch School—is by Mr. Clutterbuck. In justice to Mr. Parry, I must say that I shared in his belief, and I took this performance for Flemish glass; the more so, as by some unaccountable blunder the dimensions of the window were mismeasured, and the glass has been cut down in every direction. There are not "five other churches in the parish of St. Luke," but only three.

Hoxton. W. Scott.

P.S.—A repetition of the marble and iron altar table of St. Andrew's, and of the same date, is in St. Clement Danes. From my earliest years I have been familiar with St. Andrew's, Holborn. I think that my childish recollections do not deceive me in recalling some frescoes on the western wall of that church, prior to the repairs and erection of the little galleries about the year 1820. Can any of your correspondents give information on this point?

Dr. Spurgin's Bridge.—Sir,—I am somewhat surprised that the bridge invented by Dr. Spurgin, and shown in the Great Exhibition, should have been unnoticed by the jury,—an invention which one of our most eminent architects pronounced to be the *chef d'œuvre* of a bridge, and which he should be proud to see thrown across the Thames at Westminster,—a bridge applicable in its principles to the long-sought desideratum in architecture—a flat roof. There is now no reason why the present pointed roofs of our houses should not be converted into useful flat ones. For roofing railway termini and other large covered buildings the advantages of this invention are immense, compared with the so-called self-supporting roofs now in use. This bridge is constructed upon principles derived from the animal fabric, as presented in the vertebrate series.—Working Man.

STEWART'S HOSPITAL, EDINBURGH.

OF all the cities in the United Kingdom none are better supplied with charitable institutions, for educational purposes, than Edinburgh. Numerous as are these institutions, continual additions are being made to their number: but two years ago one was put in operation, the erection of which cost nearly 150,000*l.*; and now another is approaching completion, which, though of smaller extent, aims at an equal, if not greater, attempt at architectural effect.

This structure is raised from funds left for that purpose by the late Mr. Daniel Stewart, of the Exchequer. The style is Elizabethan, with a dash of the domestic castellated, but with none of the richness of detail generally found in the former, nor the picturesque effects of the latter: it bears aloft a multitude of little turrets and cupolas, which are presided over by two towers of larger dimensions, reminding one of a box of toys arranged by the hand of a child at play. It is surely the height of absurdity to apply what was intended as a means of warlike defence, to a structure the object of which is of so peaceful a description, the more especially as the turrets are neither in themselves beautiful, nor available as a means of outlook. There is, moreover, a want of connection in many parts of the edifice, the cupolas appearing as if they could be lifted off and on at pleasure. Strange that the designer of this structure (Mr. D. Rhind) should have been also the architect of one of the finest buildings that adorn our city: he seems to have so designed it out of rivalry to a recently constructed edifice in a similar style (Donaldson's Hospital), and certainly he has avoided its greatest fault—want of projections, and consequent absence of light and shade, but in attempting to avoid a lesser he falls into a greater error.

In the immediate vicinity of the pile above referred to is another institution of a similar nature, with a frontage of two stories in height, and about 140 feet broad, with a *Doric* portico of six columns in the centre, suggesting the idea of barracks adorned with the spoils of a Grecian temple. Opposite this, again, is another, very beautiful in design, but disfigured with make-shifts for chimney, but the spectator is *supposed* not to see them.

Elizabethan seems now to be the prevailing style in Edinburgh, and should it continue so, it will hardly be entitled to the name of the "Modern Athens," but must revert to the more ancient title of DUN EDIN.

ANTIQUARIAN MATTERS.

Malton.—The excavations near Malton, in constructing the Thirsk and Malton Railway, have disclosed several antiquities of interest. The workmen lately came upon a rough flat stone, on raising which they discovered a cavity, 4 or 5 feet deep, of irregular shape, and much obstructed with rubbish. This is believed to have formed part of the subterranean passage which (tradition asserts) existed between the ancient castle and old Malton Abbey, about half a mile distant. It is intended, we understand, to have this passage cleared out, and its extent determined. The foundations of ancient buildings have been laid bare, and the remains of fires extinct for centuries. Coins, skeletons, &c. have also been found.

Athens.—Baron A. de Humboldt, says a Berlin journal, has announced the discovery at Athens of the edifice in which the Council of Four Hundred was accustomed to assemble. Upwards of 100 inscriptions have already been brought to light, as well as a number of columns, statues, &c.

Mount Zaharah.—There exists on Mount Zaharah, in an island of the Red Sea, an emerald mine, which the Pacha of Egypt has for a long time wished to work, and which had been abandoned in the latter end of Mehemet Ali's reign. A British Company lately solicited and obtained permission to re-commence the works. In executing some operations lately, Mr. Allan, the Company's engineer, discovered, at a great depth, a gallery of the most remote antiquity. He succeeded in finding ancient tools and utensils, and a stone on which were engraved hieroglyphic characters in a great measure erased. The nature and form of the tools, utensils, and gallery prove that the ancient Egyptians had made great progress in engineering. It would appear, on studying the stone, that the date of the mine goes back as far as about 1650 years B.C.

SOCIETY OF ARTS.

THE Society are carrying out in an admirable manner the idea of Prince Albert, that a series of lectures should be delivered on the Great Exhibition at the Society's Rooms, Adelphi. In pursuance of their arrangements, which comprise a list of first-rate lecturers, Dr. Whewell, on Wednesday evening, delivered an eloquent and excellent discourse on the general bearing of the Exhibition on the progress of art and science, in course of which he expatiated on the unexampled opportunity which it afforded to even the poorest or most sedentary and home-fixed spectator of surveying the whole world's treasures of industry and art, beauty and utility, excellence and luxury,—an opportunity such as never was offered before to any man, either actual or imaginary, except, perhaps, to the latter in some "Arabian Night's Entertainment," of which this may well constitute the thousand and second series of marvels. Without such an opportunity, pursued the speaker, "what time, labour, and perseverance would he have required—what hardships to undergo—what access to great and powerful men—in the accomplishment of such a survey. A life would scarcely have sufficed, with all the appliances and means which wealth and power could give. Like the philosophers of ancient days, he would have had to spend all his years in travel, and yet, after all, how far would such a survey fall short of the simultaneous view afforded by the Exhibition; while, at the same time, but one individual could profit, even from such an undertaking as they had imagined. Here, at one view, they had placed before them the choicest productions of human art in all nations and in all stages of progress, from barbarism to the highest civilisation." The advantage of obtaining a permanent classification of all the objects of men's skill and industry, he afterwards remarked, "were very great, as *it gave the manufacturer, the man of science, the producer, and the artisan, a settled common language*, in which they might speak of the objects with which they were connected."

PITT'S SELF-ADJUSTING LOCK FURNITURE.

MOST of our readers must have noticed Messrs. Hart's often-repeated advertisement of this patent, and many have tried it. It may nevertheless be useful to some to say that we have had some of the lock furniture in use now for a considerable time, and find it all that can be desired. The improvements in it upon other methods of mounting and fixing door furniture consist in this,—that the spindles are not fastened to the knobs, but drift loosely in them, and will therefore adjust themselves to doors of different thicknesses without alteration, and the objectionable side screw in the neck of the knob is not required. The mountings by which the knobs are secured to the door form bearings for each knob, and consequently there is less friction on the follower: the action also is more pleasant than with ordinary mountings, and that disfigurement of the door which frequently occurs when the common rosette is used, is avoided.

As a mounting, it is certainly superior to any other kind of spindle. The difficulty that the makers have to contend with is price, as these are necessarily somewhat dearer where plain china or hard wood furniture is used than common mountings, but there is little or no increase where ornamental china or glass is desired. When specifications are made out, it is usually thought sufficient to state that china, glass, or hard wood furniture is to be provided, the architect forgetting what rubbish is to be obtained. Some china furniture is now being sold at a less price than tolerable brass, but of such a quality that it would be far more advantageous to the employer that the latter should be used.

So well do we think of the patent spindles, that we will go to the length of saying, that if architects were to provide in future specifications that the furniture should be "Pitt's patent," the increase of first expense on a house would be but nominal, while it would insure better fittings and the saving of much annoyance and outlay afterwards.

SITE FOR THE NATIONAL GALLERY.

As to the adoption of the site of the cavalry barracks in Hyde-park, for the proposed new National Gallery, in a number of your very excellent periodical, you objected to this plan, on the score of its being too much exposed to the smoke of London. Now it strikes me there are some other serious objections against the scheme. The ground on which the barracks stand is lengthy enough, but it has no depth to allow of ornamental ground in front or rear. Shut up between two roads, the narrow side will be all that can be contrived to front London, which, to assume a dignified and appropriate character, it ought to face.

Walk a little farther (out of the smoke) to the north-west and you will find one of the finest positions which could be obtained near any capital in Europe: place it on the site of old Kensington Palace, looking down from the west through a vista or wide avenue of trees already prepared to the Serpentine, and across the park to Grosvenor-gate.* Fill up that Dutch pond, and in its place make any kind of ornamental garden with terraces which may be thought requisite. Should funds allow, throw a bridge across the Serpentine and make a straight road through Hyde-park to Grosvenor-gate, where should be a handsome arch. On the site of the old palace there is space enough for any extent of building, with approaches ready made, and fitting opportunity of making any further number. Scarcely any trees need be cut down.

A LONDONER.

VALUE OF PROPERTY AT WOLVERHAMPTON.

RAILWAY COMPENSATION INQUIRY.

A FORTNIGHT AGO an inquiry was opened before the acting under-sheriff and a special jury, to assess the compensation to be paid by the Oxford, Worcester, and Wolverhampton Railway Company for 423 yards of freehold land, forming part of the site of Mr. Wm. Bailey's extensive chemical works in Horsley-fields, Wolverhampton; and also for 2,011 square yards of prebendal land adjoining the works, and running parallel with the intended goods station of the Stour Valley line.

Mr. Hornblower, architect, estimated the value of the 2,011 square yards of prebendal land at 50*l.* annual rental, and that Mr. Bailey's interest in it was worth about 12½ years' purchase, taking into consideration the ages of the three lives, making its total value 620*l.* 15s. To this he added 33⅓ per cent. for compulsory sale, namely 206*l.* 15s., making the total sum claimed for that piece of land 827*l.* 10s. For the purchase of 423 yards of freehold land, near the proposed tunnel, he allowed 211*l.* 10s., to which he added 50 per cent. for compulsory sale, namely, 105*l.* 15s. He estimated the cost of taking down and rebuilding the hydriadite manufactory, the shed, the smiths' shops, the stoves, with the whole of the plant therein, &c. at 450*l.* Earthwork to raise land in the present works so as to pass over the tunnel, 341*l.* 16s. Extra cost of foundations of buildings to be erected and of the retaining wall which would be required in present works, 404*l.* 15s. 9d. Extra cost of foundations to flues, stoves, &c., 400*l.* Depreciated value of the whole works, 50*l.* per annum, which at 20 years' purchase amounted to 1,000*l.*, making a total sum in reference to the freehold land of 2,913*l.* 16s. 9d., and this, added to the 827*l.* 10s. for the prebendal land, made the total amount of his valuation 3,741*l.* 6s. 9d.

Mr. G. Taylor, surveyor, on the same side, brought the value to 3,935*l.* 3s. 5d.

The jury returned a verdict for 1,705*l.* 4s.; assessing the compensation to be paid for the two pieces of land at 705*l.* 4s. and for the severance of the freehold, 1,000*l.*

* Our correspondent does not seem to be aware that we originally pointed out and have long advocated the adoption of this site.—ED.

RAILWAY JOTTINGS.

Gloucester.—The long-talked-of docks at Gloucester, it appears, are about to be provided, tenders having been called for by advertisement for works connected with them. The works will comprise the widening of the Gloucester and Berkeley Canal at Lanthony, to the extent of about 60 feet, and for a distance of about 360 yards, and the formation of a branch line, of a mile in length, from the docks to the main line at Over-bridge. The erection of the permanent passenger-station at Gloucester is to be immediately proceeded with. Its site will adjoin that of the Midland station. The Great Western Company have agreed to purchase from the Charity Trustees a piece of land adjoining the workhouse, for the purpose of increasing their goods accommodation at Gloucester. This purchase, says *Felix Farley*, will add about 4,000*l.* to the funds of St. Bartholomew's Hospital. The works at the bridge at Chepstow, on the South Wales line, are being proceeded with.

Somerset Central.—Application is to be made to Parliament for authority to construct a railway from the Bristol and Exeter, at Highbridge, to Glastonbury, and probably to Wells. The Bristol and Exeter Company have agreed to sell the Glastonbury and Highbridge Canal to the above company, and to take shares in the undertaking in lieu of the purchase-money. The length of the proposed line is 12½ miles, the estimated cost 70,000*l.*, and the gross traffic receipts are estimated at 9,000*l.* per annum.

Conquest of Difficulties.—"It is well known," says Sir Francis Head, "that one of the results of Mr. Robert Stephenson's elaborate investigation was that the London and Birmingham Railway ought to pass through the healthy and handsome town of Northampton. The inhabitants, however, urged and excited by men of influence and education, opposed the blessing with such barbarous fury, that they succeeded in distorting the line *viâ* the Kilsby tunnel, to a point five miles off." The Kilsby tunnel is a specimen of engineering which tells with double force after the above relation. Let to a contractor for 99,000*l.* a quicksand soon stopped his progress, and though the company relieved him from his engagement, the vexation killed him. Mr. Stephenson then undertook the task, and confronted the difficulty with a most inventive spirit. Though the water rose and covered the works, though the pumping apparatus appeared insufficient, though the directors were inclined to abandon the task, the engineer, by the aid of their capital and his skill, with 1,250 men, 200 horses, and 13 steam-engines, raised 1,800 gallons of water per minute, night and day, for eight months, from the quicksand alone, and infused into the workmen so much of his own energy, that when either of their companions were killed by their side, they merely threw the body out of sight, and forgot his death in their own exertions. Three hundred thousand pounds was the cost of this great work. Thirty-six millions of bricks were used in its formation: 177,452 cubic yards of soil were taken from the tunnel in eight months: 286,480,000 gallons of water were pumped from it; and for all this the shareholders of the company are indebted to the "men of influence and education," who excited the people of "the healthy and handsome town of Northampton."—*History of English Railways.*

Survey of Morpeth and Bedlington.—The Local Board of Health for this district have accepted the tender of Messrs. Hoggar and Rapier, of Wolverhampton, for the survey of the towns of Morpeth and Bedlington, together with the district lying between the rivers Wansbeck and Blythe.

Metal Roofing.—Mr. C. Cowper has obtained a patent for "improvements in coverings for buildings," dated May 3, 1851. This invention consists in constructing coverings for buildings of plates of iron, formed into the shape of tiles, and furnished with suitable contrivances for fixing the same, and afterwards coated with a vitrifiable glaze or enamel.

Books.

Familiar Letters on the Physics of the Earth; treating of the chief Movements of the Land, the Waters, and the Air, and the Forces that give rise to them. By H. Buff, Professor of Physics in the University of Giessen. Edited by A. W. Hoffmann, Ph.D., F.R.S. London: Taylor, Walton, and Maberly. 1851.

The object of the author of this little treatise is not so much to offer new facts to the man of science as to render to a large circle of readers some assistance towards obtaining clearer views and more precise notions of the processes which are at work on the largest scale on this our earth, as well as of the causes by which they are governed, and of their influences on the condition and the general features of the surface of the globe. There is certainly a large class of readers of good general education to whom such a work will be very acceptable, and we believe that they will find the present book both instructive and entertaining. We would have liked to have had "more precise notions" on some points however, or, at least, happier terms, than we find in the following instance in the outset:—

> It is now no longer doubtful, that the primæval shocks and revolutions through which the earth has evidently passed, and to which it owes its present form and state, were manifestations of the same natural forces, whose action, sometimes formative, sometimes destructive, we continue to witness at the present day.
>
> Two of these powers, which work throughout the entire universe, and bring under each other's influence all the heavenly bodies—*gravity* and *heat*—stand out as the mainsprings both of the past revolutions, and of the present changes of the earth. Gravity is the principle of attraction and solidity; heat, of expansion and mobility. All material things bear within them these two sources of action.

Having thus set off with "gravity" and "heat," as the two great cosmical forces, the author proceeds to say that—

> *General gravity* (gravitation)—the mutual attracting power of all heavenly bodies—links the earth with its companion, the moon, and leads the latter in its path round the former, and both in their yearly course around the sun. It maintains the equilibrium of our own solar system, and also that of the whole universe.
>
> *Earthly gravity*—the mutual attracting power of the atoms of the earth—tends to arrange them about a common central point. . . . . The sum of the attractions of all the other particles for any single particle, or for any body upon the earth, is what is called the *weight* of that particle or body.

Admitting that the terms in use to denote the divers regions—if we may so call them—of attractive and repulsive, or at least concentrative and radiative force—such as those of particles in masses, masses in spheres, spheres in stars, and stars in clusters, or clusters in firmaments—are terms very loosely applied even by men of science, still we can scarcely admit of so very unusual and unauthorised an application of such a term as "gravity," to the cause of "solidity." Moreover, although gravity be a term in use to denote certain *sections* of concentrative power, limited by the region or regions of *form*—such as mass, stratum, or sphere—to which it has been applied, and although heat be a term in use to denote a certain section of radiative, or repulsive power, limited, though as yet obscurely, to regions of form allowed by chemists, &c., to be *interior to masses*—such as particle, molecule, atom—and never applied to those *exterior*—such as stratum, sphere, star, cluster, or firmament,—it is certainly going too far to maintain that gravity and heat are a couple of terms entitled to denote something like the attractive and repulsive forces in general. This is an abuse of terms not one whit more justifiable than it would be to select the positive force manifested in cold as attractive force, and then to apply "cold" as a sweeping term denotive of attractive force in general. "Magnetism," even, might just as well be made the co-ordinate antithesis of "heat" as "gravity." The force which we really recognize as the cause of *solidity*, men of science call the cohesive force, not the force of gravity. However, we do not so much blame this author merely, as we do the general looseness with which such terms are applied, though certainly not to so great an extent as in the present instance: imperfect knowledge of the actual organisation and economy of nature is the ultimate reason why such incertitude exists in the use of terms which ought to be definite, and we think could easily be made so, shedding, at the same time, a flood of light upon the nature and the limits of all the recognizable powers and forms—or sections, rather, of power and form—in the universe.

Cyclopædia of useful Arts, Mechanical and Chemical, Manufacturing, Mining, and Engineering: edited by Charles Tomlinson. Illustrated by engravings. George Virtue, London and New York. Parts 1 and 2.

If the two first shilling parts of this work be a fair sample of the whole, it will constitute a very useful book of reference and instruction. The subjects of most interest to our readers in the two parts issued are Abbatoirs, Aqueduct, Artesian Wells, Asphaltum, Augur, Awl, and such like. There are also interesting articles on Ærostation, Anemometer, Annealing, Alloy, and other subjects. The Great Exhibition will furnish materials, it is said, for the work throughout.

The Elements of Perspective, illustrated by numerous Examples and Diagrams. By Aaron Penley. London: Winsor and Newton. 1851.

This is one of a series of useful little books issued by Messrs. Winsor and Newton, the well-known artists' colour makers. Mr. Penley has set forth his knowledge perspicuously, and given a number of carefully drawn examples.

Eliza Cook's Journal. Published by Charles Cook, Raquet-court, Fleet-street.

Amid the host of craft launched on the ever-swelling sea of literature, there are few that are steering more directly for the port of public favour than this unpretending but excellent periodical. In the last volume may be found interesting and instructive papers on all subjects,—history, biography, chemistry, poetry, travels, fiction, &c. &c.—the whole being carefully edited, and forming an admirable family journal. Its typography is exceedingly neat, and the journal is of a nice readable size, and we doubt not the renewed health of its popular editress will tend to infuse fresh vigour into its future numbers.

Miscellanea.

Bedfordshire Archæological and Architectural Society.—A general meeting of this society was held at Bedford on Tuesday in week before last, Col. W. B. Higgins in the chair. The report for 1850-51 was read and adopted; and a letter from the Rev. F. Hose was read as to Dunstable Priory Church, the rebuilding of the south aisle of which was said to be progressing with activity. Discoveries had been made which proved that the external gallery extended all along the west front. The entire columns of one side of another Norman doorway had been found, which had formed the entrance into the aisle now rebuilding. The society contributed 10*l.* to the restoration. A paper on Bedford Castle, by Mr. Hurst, was then read, and was followed by another on Hawnes Church, by the Rev. B. E. Brydges, in which it was stated that its restoration had been just completed. Various objects of interest were exhibited at the meeting.

Edinburgh School of Arts.—A *soirée* in honour of this school recently took place in Queen-street Hall. The *soirée* was got up under the auspices of the students attending the institution; and it was chiefly, it is said, got up to celebrate the advantageous position now occupied by the institution, in the purchase of premises in Adam-square, intended at once to accommodate the school and to serve as a monument to the memory of James Watt. The hall was well filled, and the Lord Provost occupied the chair.

BRUNELLESCHI'S DOME. — Your correspondent, "H. T. B.," has, I think, misunderstood the quotation he gives from the report of Brunelleschi concerning the erection of his famous dome. The quotation ends thus, "adopting the proportions and manner of the pointed arch, this being a form which displays a rapid tendency to ascend;" from whence "H. T. B." concludes that this great architect regarded the dome as an aspiring feature. But what Brunelleschi says is this, "That it was not possible to construct it in a perfect circle, *as the weight of the lantern above would soon overthrow the whole.*" He had, therefore, determined to turn the inner part of the vault in angles, according to the form of the walls, adopting the proportions and manner of the pointed arch, which, having a tendency to rise, *and being loaded with the lantern, the one with the other would render the whole durable.* This, it will be seen, has no connection with the aspiring character of the dome considered as an architectural feature; and that Brunelleschi did not think the structure demanded an aspiring dome is clear from what he elsewhere says, that he would, if the thing had been possible, have constructed a vault like that of the Pantheon.—R.

SAVINGS BANK COMPETITION, BRIGHTON. —I send you the following account and result of a competition just settled here for a savings bank, about to be erected in Brighton. Five gentlemen were applied to, who, accordingly, sent in designs, which were considered by a sub-committee appointed for the purpose, and one of the number, marked "Justitia," recommended as first in merit, and another, "Delta," as second; but upon the report being presented to the general committee for their approval, it was decided that the plans marked "Justitia" could not be considered, because they were *coloured*, contrary *to the instructions*, and that "Delta" should then take the first place, and "Fidelitas," the third in the list, should be placed second. A protest against this decision was thereupon sent in by "Justitia," on the ground that all the plans were more or less contrary to the instructions. Well, Sir, the committee again met and resolved to reconsider the matter, and the plans of "Justitia" were again admitted to stand or fall by their merits; but by this time the names of the authors had been divulged, and the plans of "Justitia," after being declared by the sub-committee superior in accommodation to any others sent in, were recommended to be again thrown out on a question of detail, and this by one of the three gentlemen who formed the committee. This point being carried, it would naturally be supposed that the former decision would stand. But no, it was suddenly discovered that the designs of "Fidelitas" possessed a merit hitherto hidden, and were worthy of receiving the reward due to merit by being placed in the first place, to the exclusion of "Delta," whose plans had actually been accepted and an award made in his favour; both sub and general committees having thus completely reversed their former decisions.—JUSTITIA.

WATER SUPPLY.—Last week, Lord Shaftesbury and Mr. Edward Chadwick went to view the new gathering grounds and works at Woodhead, for the improved supply of Manchester with soft water. The examination of the works for the collection of the soft water, which is mainly derived from soft water springs and from the rainfall upon the formations of the gritstone sand, occupied them during the day. At night, at a meeting of the factory operatives of Manchester, his lordship adverted to the water-works, and said that the working men of that district were to be congratulated, that by the exertions of the corporation, acting upon good advice, they had now the certainty of the blessing of supplies of water of the highest order of purity, fit for their children and themselves to drink, good for making tea, and for saving soap, and pleasant instead of disagreeable to wash with. It was most disgraceful, he said, that with similar means of supply of water of similar quality available, the population of London were debarred from using it, and were restricted to the use of hard water inferior in quality, derived from rivers polluted by sewerage and traffic. We understand that in several other towns under the Public Health Act, the principle had been adopted, which was enforced by the General Board of Health, of abandoning the rivers (the sources of supply hitherto adopted as a matter of course, with large open reservoirs of subsidence or filtration), and going farther a-field to collect springs of the softest water to be found, and leading it in covered pipes, with as little detention or exposure as practicable, direct in a continuous supply to the houses of the consumers. The question is of such great importance to the metropolis that the results in these places should be carefully noted.

ANCIENT STONES AND OBELISKS.—THE SYRO-EGYPTIAN SOCIETY.—At the meeting on 11th, Mr. Bonomi communicated some observations on the ancient mode of setting up stones and obelisks on their pedestals. He remarked that on some of the largest stones in the temples of Greece and Sicily a groove is made in the shape of a horse-shoe at each end of the stone, by which means a rope could be inserted, and the stone suspended and lowered into its place without disturbing its neighbours, and then the rope drawn out. In the great temple of Agrigentum, in Sicily, there is also another contrivance for lifting and lowering into its place large blocks of stone. It consists of a projection at each end of the stone (part of the block itself), round which a rope might be placed in the same way as in former contrivances: it was placed in the groove. In the great blocks of the terrace-wall of the Temple of Baalbek there are some accurately cut square holes of sufficient depth to insert iron pins, by which the block might be attached to the moving power. With us a rectangular hole is cut in the upper surface of the block, which hole is wider at the bottom than at the top, for the insertion of iron wedges and a ring, by which means the block is suspended and lowered into its place. None of these contrivances are discoverable in Egypt, but Mr. Bonomi pointed out in the pedestals of the two obelisks of Luxor, and in the pedestals of the colossal sitting statues of the plain of Gorna, grooves that extended the whole length of the profile of the square block on which the statue is erected.

THE MELVILLE AND WELLINGTON STATUES AT EDINBURGH.—At a recent county meeting, a report was read on the present state of matters as regards the Melville statue. The total sum raised was 2,027*l.* 19*s.* The committee had resolved to have the statue reduced in size to 10 feet, with a pedestal of polished red granite instead of freestone. The price to be paid to the contractor is 1,850*l.*; and the work, under penalties, is to be done in stages and completed within two years. The model has been completed, and the preparatory work for the full-sized model is being proceeded with. A letter was read from Mr. Steele, the sculptor, in which it was stated that the work would not be delayed as the Wellington statue had been, because the erection of the sculpture foundry, the first of its kind in Scotland, was now completed, so that the Wellington statue itself would be cast in a short time, the delay being solely owing to the want of this foundry.

SLATE ROCKS OF CORNWALL AND DEVON.—In a paper read at the Geological Society on 5th inst., Professor Sedgwick, F.G.S., explained that the sedimentary rocks of Cornwall and Devon are arranged as follows:—1. The culm measures of west Devon form a trough, the parallel sides of which extend from Hartland Point to beyond Bampton, on the north; and from Lesnewth to the south of Exeter on the south, interrupted, however, in this southern edge, by the great granitic mass of Dartmoor: 2. The calcareous slates of Barnstaple, and the sandstones of Charwood and Boggy Point, underlie the culm measures on the north, and are represented along the south edge of the culm-rocks by the limestone and fossiliferous slates of Petherwin, and, forming with the latter the "Barnstaple or Petherwin group," constitute the upper part of the "Devonian system:" 3. The "Dartmouth group," or middle Devonian, appear on the north as the unfossiliferous slates and coarse grauwacke of Morte Bay, and on the south of the culm trough as the unfossiliferous slates of the Dartmouth district: 4. The oldest or "Plymouth group" of the Devonian series is well marked on the north by the limestone and sandstones of Linton, and the north coast, and on the south by the fossiliferous slate rocks of the "Liskeard group," and the limestones and sandstones of the Plymouth district. The professor next proceeded to describe a series of slate rocks to the south of the granitic mass north of St. Austell, and occupying Dodman Point and Nare Head.

TELEGRAPHIC BELL BOARDS.—Ingenious bell-hangers and others have of late been pretty frequently engaged in trials of inventive skill in this useful direction. The latest modification of the idea is one recorded by the *Lincolnshire Times*, which describes the apparatus as an extremely simple one, with a single bell and board for each building—such as an inn, public building, factory, &c.,—although it transmits a number of messages, such as may be usual in the building, as well as indicates the apartment whence the message issued. On the surface of a series of balls the messages or notices are written or engraved, and these are suspended so as to communicate with the various apartments by wires passing through holes on a flat surface affixed to the walls, and when acted on from the apartments, each appropriate counter-signal is lifted, the bell is rung, and the ball remains in its lifted position till turned off by a small lever. The mode in which each particular message is despatched in each room to the bell board is described, not very clearly, as "merely pulling a bellrope;" but we presume there must be a number of bellropes in each apartment. We can readily conceive a single rope and wire, however, to do the whole work, if each signal required a different length of pull, measured out on a board or plate in each apartment, and communicating, by its own single indicator, with one common bell, and with a single line of messages printed on a bell board.

NEW PREPARATIONS FOR BOMBARDING VENICE!—Our readers may rub their eyes: it is indeed scarcely credible; but it is nevertheless the fact: a truly monster battery is in course of preparation in front of the island on which stands the church of San Georgio Maggiore, so that the guns may be brought to bear at once upon the Piazzetta, the Ducal Palace, the Dogana, and the entrance of the Grand Canal; and the Austrians, at their first discharge, will thus have the satisfaction of reducing the chief monuments of the city to ruins. Venice is not only sacred to the memory of the past, but it is a city in which all Europe is interested, and which may be fairly regarded as the common property of the civilised world, all the more so that it stands in the ocean, which *is* common to all. It is, therefore, an insult to the general feeling of the nations to threaten destruction in such a way to monuments prized by all, and, if persisted in, cannot but rouse the indignation even of those friendly to Austria and its cause. We owe our knowledge of the fact to the *Times*.

"POWERFUL STRONG."—The American papers notice an invention by Mr. Solomons, of Cincinnati, of what he calls a perfect substitute for steam! From common whiting, sulphuric acid, and water he procures carbon in the gaseous state; and with the power exerted by this gas, he asserts that he now drives a 25 horse engine, and for one-fortieth the expense of steam, lifts and lets fall 12,000 lbs. five times in a minute. This fluid, without any heat applied at all, exerts a pressure of 540 lbs. to the square inch, while water in the same unheated state has no pressure but that of gravity. Water, heated to the boiling point, yields a power of 15 lbs. This fluid, with the same heat, would yield a power of nearly 12,000 lbs.! And what is more, a handful of charcoal, and a boiler, the size of a tea-kettle, will produce, at an expense of a few cents, the whole of this tremendous energy! Fifty dollars expense in carbon will carry one of the Collins steamers from New York to Liverpool. *Bravo!*

CIRCULAR SAWING MACHINES.—Mr. Robert W. Parker, of Roxbury, U.S., has invented an improvement in driving circular saws, which, it is asserted, obviates much of the friction attendant upon the ordinary modes of running such saws. By a peculiar arrangement of belts and pulley, Mr. Parker states that he can easily get, by hand power, 2,600 revolutions of a buzz saw per minute, cutting through a three-inch plank in that period by the power of one man at the crank.

WALL PAINTINGS ABROAD.—"We learn from Munster, Westphalia," says the *Literary Gazette*, "that some fresco paintings of the thirteenth century have been lately discovered in the church at Seremhorst, near that town, and that a curious specimen of painted glass has been found at Legenwinden. In the chief aisle of Patroklus Church, at Soest, Romanic frescoes and statuettes of the twelfth century have been discovered, and measures taken to remove from them the coatings of lime and plaster which the fanaticism or the ignorance of former years has heaped on them. It has also been discovered that the Nicolai Chapel, in Soest Cathedral, is entirely covered with very curious paintings of the twelfth century.

ISTHMUS OF SUEZ RAILWAY AND CANAL.—From Alexandria, the line proceeds in a south-eastern direction to Damanhour, passing at short distances from Salamoun, Nadir, Wardan, and Kelioub, to Cairo. The proposed route across the desert from Cairo to Suez, branches off from the Alexandrian line at Bulah, a few miles north of Cairo, and proceeds nearly parallel with the present Great Hadj route, to Suez on the Red Sea. The route of the proposed ship canal commences in the Mediterranean, at the mouth of the Tineh, the entrance to the ancient Pelusiac Canal, and proceeds in a southern direction to Suez, terminating in vestiges of the ancient canal of Sesostris or Necho. Mr. Wyld, of Charing Cross, has published a map, in which these routes are traced out.

DIVIDING AND MEASURING MACHINE.—A new invention has been described to us as exhibited at the Crown Tavern, near the Obelisk, Blackfriars-road. It is the production of a working-man, named Thomas Best, an engineer and machinist at Greenacre's-moor, near Manchester. The body of the machine is described as consisting of a telescope frame of steel, containing a screw, half-an-inch in diameter, and 7 inches long—a wheel, 14 inches in diameter, being affixed to one end of the screw. The edge of the wheel is divided into 500 parts, and as it requires 20 complete revolutions of the wheel to advance the screw 1 inch, the turning it one division will advance the screw 1-10,000th part of an inch. To the wheel-end of the telescope-frame a steel point is attached, the top of which (level with the upper part of the wheel) is the breadth of two of the wheel divisions. On one side the point is divided into ten, and on the other into six parts, so that the turning of the wheel the distance of one of these very minute divisions will cause the screw to move 1-60,000th or 100,000th part of an inch, as may be required. Allowances for expansion or contraction of the metal of the machine are also provided for. For the purposes of dividing, an addition is made on one side of a rest, for the substance to be graduated, and a toolbox is substituted for the face attached to the main-screw. It is said to be capable of dividing the English standard of lineal measure, its component 1-100,000th part of an inch, but as it is regulated in tenths it is more immediately adapted to the division of foreign standards of lineal measure, and the graduation of scales in accordance therewith.

THE BANKING INSTITUTE.—At the Hall of Commerce Chambers, in Threadneedle-street, the first monthly meeting of this institute was held on the 25th inst., when Mr. Dalton read a paper on the question, "How far is the security of Banker's Locks affected by the recent scientific and ingenious experiments on patent locks?" The meeting was addressed by Mr. Chubb and Mr. Hobbs, who had been invited to attend. The proceedings did not exactly satisfy us, although we cannot say why.

THE MARYLEBONE LITERARY INSTITUTION.—A new lecture theatre has been built for this excellent institution, and will be opened on Monday, 1st December, with a reading from Shakspeare by Miss Glynn. We will give some particulars. Amongst the lectures announced are six by Mr. Thackeray on the Humorous Writers of the last century, for which, by the way, he is to receive the sum of 150*l*.

NEW BRIDGE FOR WESTMINSTER.—The design for the new bridge is, we understand, by Mr. Hardwick, architect.

TO CORRESPONDENTS.

A Question.—Will one of your correspondents give me *the rule* by which to ascertain what height an object should be (placed at a horizontal distance of 100 yards, and at an altitude of 50 feet), to appear 5 feet high?—IGNORAMUS.

"S. C. jun.," "G. G.," "Devizes Man," "C. B.," "H. A.," "J. W. P.," "T. H. W.," "C. O." (we hope to give details hereafter: the roof at King's-cross Station has no tie-rods), "A Building Operative" (our correspondent draws a wrong inference: we meant no taunt by the quotation referred to), "G. M. H.," "W. H.," "G. D. D.," "Mr. F.," "Moses Adams" (had better hear the writer out first), "Crito" (we have no desire to quarrel; but unhesitatingly decline the alternative), "W. C. jun." (the means of destroying ants were discussed in our pages some time ago), "An Inquirer" (the subjects mentioned are treated of throughout THE BUILDER: it is impossible for us to refer), "G. E. L.," "C. B.," "E. J. P." (we shall be happy to see the notes), "R. R." (may discuss the matter with Mr. Wells: we decline correspondence on the subject), "E. A. F." (will appear), "E. L. G." (thanks), "J. B. D." (the letter appeared to be in our correspondent's handwriting), "A Subscriber from First," "W. H.," "E. W.," "G. E. G.," "R. H."

NOTICE.—All communications respecting *advertisements* should be addressed to the "Publisher," and not to the "Editor:" all other communications should be addressed to the EDITOR, and *not* to the Publisher.

"*Books and Addresses.*"—We have not time to point out books or find addresses.

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